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Family Vulnerability, Disruption, and Chaos Predict Parent and Child COVID-19 Health-Protective Behavior Adherence

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Introduction: This study examined the role of family functioning in predicting family adherence to health-protective behaviors (HPBs) aimed at reducing COVID-19 spread. Pre-COVID-19 family functioning, disruptions to family functioning (cohesion, conflict, routines), and family chaos during the COVID-19 pandemic were tested as pathways to HPB adherence. ***Method:*** We utilized a sample of N = 204 families, comprising parents who had children (M_{age} = 4.17). Parents (M_{age} = 27.43) completed one survey prior to COVID-19 onset in the United States, and twice during COVID-19, at a 2-week interval. Structural equation modeling was used to test three potential pathways between prepandemic family-level functioning and HPB adherence during the COVID-19 pandemic. ***Results:*** Findings indicated that families with higher levels of chaos during COVID-19 demonstrated consistently lower HPB adherence across all three models. Additionally, disruptions in family cohesion from pre-COVID was associated with lower levels of parent and child HPB adherence. Family conflict was indirectly associated with HPB adherence via family chaos during COVID-19; whereas family routines were not associated with HPB adherence at all. ***Discussion:*** These findings suggest that family functioning is a meaningful predictor of HPB adherence. Family-based support may be effective in improving HPB adherence by focusing on promoting cohesion and reducing conflict and chaos for families coping with reduced community support and resources. Strategies for family-based supports are discussed.

Public Significance Statement
Adherence to health-protective behaviors was a critical public health strategy for reducing spread of the COVID-19 virus. Stay-at-home mandates disrupted family functioning, which in turn undermined health-protective behavior adherence. Findings suggest that support efforts to minimize disruptions to family relationships can improve health-protective behavior adherence, potentially reducing virus transmission during early stages of the pandemic.

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Community strategies, including school, childcare, and public recreation area closures, combined with *health-protective behavior* (HPB) strategies including increased personal hygiene, wearing protective face masks, and social distancing (e.g., working from home, maintaining 6-foot distancing from others) are recognized as key first-line interventions to reduce infectious disease transmission while awaiting the development of vaccines (Qualls et al.,2017; Scarpino et al., 2016). However, population-wide adherence to HPBs is critical for effectiveness (Allegrante et al., 2020). Identifying factors that may act as barriers to HPB use is necessary to inform strategies to improve HPB adherence in the population. In the context of community closures and the associated increased time spent in the home, family functioning may play a considerable role in impeding or promoting parent and child adherence to HPBs.

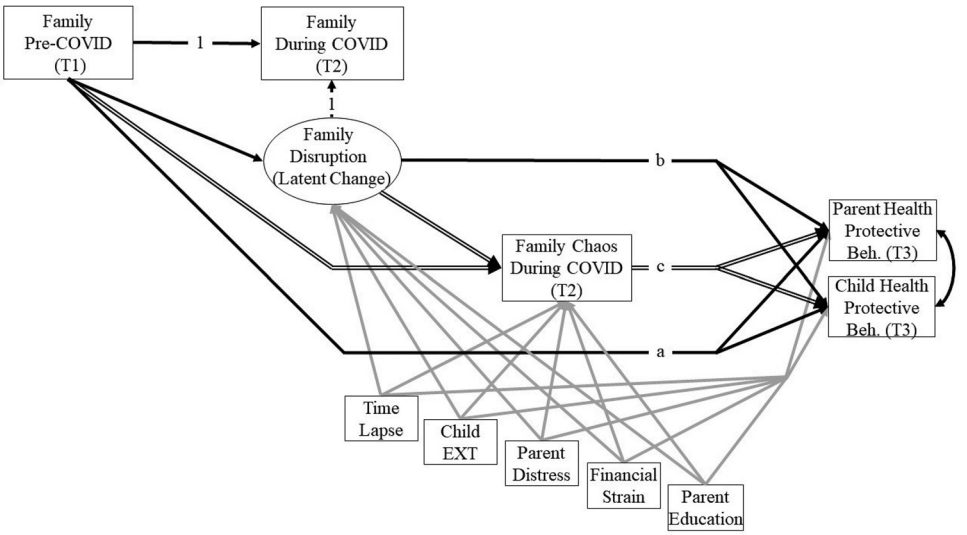
During the COVID-19 pandemic, school and childcare closures have placed tremendous burden on families to accommodate new demands for childcare and distance education, while caregivers also cope with challenges of working from home, changes to work schedules, furloughs, or even job loss. This new burden may disrupt family functioning, in turn impacting families' ability to adhere to specific HPB recommendations and guidelines. Dimensions of family functioning such as family cohesion, conflict, and routines are critical for general child and parent wellbeing (Olson et al., 2019), and contribute to adherence to a variety of health behaviors. High family cohesion, or supportiveness and connectedness among family members, is also associated with health behaviors such as healthy eating behaviors (Franko et al., 2008) and adherence to diabetes regimen (Cohen et al., 2004). The close bonds and positive interactions in high-cohesion families lead to more time spent together and promote children's compliance with parent-encouraged health behaviors (Franko et al., 2008). Conversely, high levels of family conflict—including expressions of anger and hostility—may undermine family bonds, elevate stress in the home, and impede HPB adherence. Prior studies have found associations between family conflict and poor medical treatment adherence in children (Anderson et al., 2002; Martin-Biggers et al., 2018). The consistent implementation of family routines, reflecting predictable and organized coordination of the family, are thought to be helpful anchors for families' ability to adhere to doctors' orders for health maintenance behaviors, such as effective management of child asthma (Peterson-Sweeney et al., 2010). Moreover, maintenance of family routines during periods of transition is thought to serve a protective function for youth and parents (Fiese & Wamboldt, 2000).

The Current Study

This study explored the role of three family-level factors—cohesion, conflict, and routines—that may impact HPB adherence. Each of these factors are highly malleable and amenable to change in existing, evidence-based family preventive interventions (e.g., Van Ryzin et al., 2016). Findings supporting one or more of these family domains as pathways to parent and child HPB adherence could be used to guide family-centered public health efforts aimed at maximizing public adoption and adherence to HPBs. The three hypothesized pathways by which family-level functioning may explain individual differences in the adoption of HPBs by parents and children are shown in Figure 1. A *family vulnerability pathway* (path "a") was tested to evaluate whether pre-COVID-19 family functioning predicts HPB adherence. Families that already were challenged before COVID-19 onset in the United States may have less capacity to implement and adhere to HPB practices. A *family disruption pathway* (path "b") was tested to evaluate whether it is the degree to which family functioning was negatively impacted by COVID-19 conditions that predicts parent and child HPB adherence. Specifically, families that experienced more pronounced declines in family cohesion and routines, and increases in family conflict from pre-pandemic to the pandemic period may be at greater risk for poor HPB adherence.

Emerging research points to experiences of "confinement-related stress" described by family members spending unprecedented amounts of time

Figure 1
Prototypical Structural Equation Model



at home together, while balancing remote work and education responsibilities (Hervalejo et al., 2020). To capture this aspect of family life, our third hypothesized risk process is a *family chaos pathway* (path "c"), which evaluates whether family chaos, characterized by a home environment that is crowded, time-pressured, and noisy, may be a mechanism of risk for poor HPB adherence. This hypothesis builds on prior work documenting that families experiencing greater chaos are challenged in adopting new routines and organizing their efforts toward supporting children's adherence to health behaviors, such as prescribed health protocols for chronic conditions and sleep hygiene and duration (Appelhans et al., 2014; Boles et al., 2017; Irvine et al., 2002). In the current study, we evaluate whether family chaos may function as a mediating factor through which prepandemic family vulnerability and family disruption during COVID-19 are associated with poor HPB adherence in families. Additionally, we accounted for important covariates in these analyses, as postulated in theory regarding the impact of COVID-19 on family functioning (Prime et al., 2020), including parent depression and anxiety, children's externalizing problems, parent education, and family financial stress, to better understand how these factors predict HPB adherence, and whether family vulnerability, disruption, and chaos relate to adherence over and above these covariates.

Method

Participants

We utilized a sample of families from a larger, intergenerational study already in progress prior to COVID-19 onset in the United States. Of the 244 families who had already participated in the larger study, 204 agreed to participate in data collection during COVID. No differences were found between these two samples on any demographic or study variables. Children (45.1% girls) in this sample were an average of 4.17 years old ($SD_{Age} = 2.17$). Participating caregivers ($M_{Age} = 27.43$, $SD_{Age} = 1.67$) identified as the child's mother (70.6%), father (22.5%), stepmother (1.5%), stepfather (2.5%), or other caregiver (1.0%); their racial background was White/Caucasian (90.7%), Black/African American (4.4%), American Indian, Eskimo, or Aleut (.5%), or Other (4.4%). In addition, 10.8% reported that they were of Hispanic origin. Caregivers reported their child's racial background as: White/Caucasian (91.7%), Black/African American (7.4%), American Indian, Eskimo, or Aleut (1.0%), Asian or Pacific Islander (.5%), or Other (4.4%); 12.3% reported that their child was of Hispanic origin. Most caregivers (79.4%; $n = 162$) reported that they lived with another adult who served as the second caregiver for the child (of these, 76.5% were the child's other biological parent). Of those living with

another caregiver, 68.5% were married, 24.1% were in a romantic relationship, 14.9% were cohabiting, and 6.2% were other family members (participants could endorse multiple options). Of those not living with another caregiver, 45.2% were single, 16.7% were divorced or separated, 14.3% were in a romantic relationship but not living together, and 16.7% reported having another arrangement. Total annual income per family ranged from "0–$9,999" to "$100,000 or more," with a median income between 50,000–59,999.

Procedure

The current sample was recruited from a larger project (Pathways to Health; HD092439), which is an ongoing study evaluating the intergenerational transmission of parenting and family relationships. This study was an extension of community-randomized trial of the PROmoting School-community-university Partnerships to Enhance Resilience intervention delivery system (PROSPER; DA013709, PI: R. Spoth), which recruited and followed students (N = 10,845) in 28 rural and semirural communities from sixth through 12th grade. Subsequently, a subset of the original sample (N = 1,984) were followed in young adulthood. Young adults who were parents of children between the ages of 1.5–10 years old were invited to participate in home-based data collection and paid up to $225 for participating. In March of 2020, recruitment and data collection for Pathways to Health (P2H) was paused due to the COVID-19 pandemic.

Following COVID-19 onset, all families already enrolled in the larger P2H study (N = 244) were invited to participate in biweekly surveys beginning May 8, 2020, while the vast majority of states in the United States were under stay-at-home advisory or mandate (Moreland et al., 2020), to assess coping during the pandemic (see also: Fosco et al., 2021). Participating parents completed web-based surveys and were compensated $15 per survey. The first surveys were deployed during national stay-at-home orders. A second survey was sent out 2 weeks later, resulting in three measurement occasions: one pre-COVID-19 (Time 1 [T1]) and two during-COVID-19 (Time 2 and 3 [T2 and 3]) assessments. To reduce participant burden, scales were abbreviated at T2 and T3. Abbreviated measures of family cohesion, conflict, and routines were highly correlated with original measures (rs = .84–.96). All scale means, standard deviations, and internal consistencies (Cronbach's alpha) are reported in Table 1. Items for measures are can be found in Table S1 in the online supplemental materials.

Measures

Family-Level Functioning

Family cohesion was measured at T1 and T2 using three items from the shortened Family Environment Scale (Bloom, 1985). Family conflict was measured at T1 and T2 with three items from the Self-Expressiveness in the Family Questionnaire (Halberstadt, 1986). Family routines were measured at T1 and T2 using four items from the Family Routine Inventory (Sytsma et al., 2001). Family chaos was assessed at T2 with three items from the Confusion, Hubbub, and Order Scale (Matheny et al., 1995).

HPB Adherence

At T3, parent and child HPB adherence were measured using items developed for this study, including questions about the frequency they implemented social distancing (i.e., 6 feet apart from others), avoiding public places unless absolutely necessary, and making an effort to follow recommendations for social distancing. Parent HPB adherence also included four questions about wearing gloves or a mask in public and washing hands when returning home; however one item, related to child handwashing was dropped from child HPB adherence because it was uncorrelated with other items, resulting in a reliable three-item scale.

Covariates

Parent emotional distress was measured at T1 using the Center for Epidemiological Studies-Depression (Radloff, 1977) and the Penn State Worry Questionnaire (Meyer et al., 1990). These were highly correlated (r = .62, $p < .01$), and thus were standardized and averaged to represent parent emotional distress. Child externalizing problems was measured at T1 using the Child Behavior Checklist (Achenbach & Rescorla, 2000, 2001) and then converted into T-scores. Financial strain was measured using four items from the Financial Strain Index (Vinokur et al., 1996). Time lapse was a measure of the number of weeks between T1 and T2 to capture spacing of measurements assessed in latent change scores. Parent education was reported by parents on a 6-point scale, from (1) *no formal education* to (6) *graduate degree*; the sample

Table 1
Correlations, Means, and Standard Deviations

	Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	P. Edu. (1)	—													
2	Hardship (1)	−.21**	—												
3	Time lapse	.01	−0.07	—											
4	C. EXT (1)	−.18*	.17*	.06	—										
5	P. Dist. (1)	−.05	.34**	.09	.32**	—									
6	Cohes. (1)	.11	−.27**	.08	−.19**	−.22**	—								
7	Cohes. (2)	.19**	−.23**	.01	−.25**	−.30**	.32**	—							
8	Conflict (1)	−.10	.27**	.03	.29**	.38**	−.35**	−.30**	—						
9	Conflict (2)	−.05	.22**	.15*	.30**	.23**	−.26**	−.22**	.32**	—					
10	Routines (1)	.07	−.15*	.08	−.14	−.06	.23**	.13	−.21**	−.14*	—				
11	Routines (2)	.15*	−.21**	.02	−.18*	−.21**	.36**	.35**	−.27**	−.22**	.57**	—			
12	Chaos (2)	−.07	.20**	.16*	.28**	.23**	−.17*	−.33**	.15*	.42**	−.14*	−.14	—		
13	P. HPB (3)	.01	−.07	.25**	−.11	−.04	.10	.23**	−.11	−.02	.12	.10	−.22**	—	
14	C. HPB (3)	.00	−.07	.14	−.02	−.03	.06	.21**	−.06	.02	.07	.14	−.15*	.69**	—
	M	4.16	1.40	37.90	48.27	0.00	4.18	7.82	2.09	2.18	3.44	3.45	2.77	7.2	8.29
	SD	1.05	0.53	16.16	9.68	0.90	0.75	1.98	0.80	1.91	0.58	0.60	2.01	2.19	2.15
	N	200	200	200	187	199	199	201	198	199	199	200	197	183	183
	α	—	.78	—	.86/.90	.94	.80	.83	.84	.84	.63	.72	.67	.81	.80

Note. Measurement occasion (i.e., 1, 2, or 3) indicated in parentheses. P.Edu = Parent Education; Hardship = Financial Hardship; Time lapse = time between Pre-COVID to COVID; C. EXT = Child Externalizing; P. Dist. = Parental Distress; Cohes. = Cohesion; P. HPB = Parent protective behavior adherence; C. HPB = Child protective behavior adherence. α coefficient for CBCL was calculated for young children and school-aged children separately before converted to *T*-scores for analysis.
$^{*}p < .05$. $^{**}p < .01$.

average was 4.16 (mode = 4), corresponding to *some college*.

Statistical Analysis

Primary study analyses were performed using Mplus, Version 8.4 (Muthén & Muthén, 2017). Three separate structural equation models (SEM) were computed for cohesion, conflict, and routines (depicted in Figure 1). This analytic model allowed us to test parent and child HPB adherence outcomes simultaneously, characterize intraindividual change relevant to the disruption hypothesis with latent change scores, and test the statistical significance of the hypothesized indirect pathways. Model fit was evaluated in terms of chi square, CFI (>.95), TLI (>.95), and RMSEA (<.06) (Hu & Bentler, 1999). Standardized path coefficients are reported for ease of interpretation.

Results

Correlations, means, and standard deviations for study variables are presented in Table 1. Of note, family cohesion, conflict, and routines were modestly correlated, ranging in magnitude from $r = .22$ to .35, suggesting they are distinct processes. Whether parents were in the intervention or control conditions during early adolescence was not significantly correlated with any study variables; thus, intervention condition was omitted from SEMs in favor of parsimony. Table 2 presents findings for the three SEMs. Across models, fit indices ranged from acceptable to excellent. Notably, none of the prepandemic covariates (parent emotional distress, child externalizing problems, and financial stress) were significantly associated with parent or child HPB adherence.

The first model examined the role of family cohesion (see Figure 2). Higher pre-COVID-19 cohesion was associated with higher parent HPB adherence ($\beta = .19$), but was not associated with child HPB adherence. The family disruption pathways revealed positive, statistically significant associations, indicating that families experiencing greater decreases in cohesion occurring between pre-COVID-19 assessments and those during COVID-19 were more likely to report lower parent ($\beta = .22$) and child ($\beta = .25$) HPB adherence. Higher family chaos during COVID-19 was associated with lower rates of parent HPB adherence ($\beta = -.24$). Two statistically significant indirect pathways emerged: pre-COVID-19 family cohesion (standardized indirect effect = .06) and disruption to family cohesion (standardized indirect effect = .07) each were associated with parent HPB adherence via family chaos. Prepandemic parent emotional distress, child externalizing problems, and financial stress were not statistically associated with parent or child HPB adherence.

The second model (see Figure 3) examined the role of family conflict. Neither pre-COVID-19 levels nor change in conflict were associated with parent or child HPB adherence. However, both pre-COVID-19 conflict ($\beta = .30$) and change in conflict ($\beta = .41$) were associated with greater family chaos during COVID-19, which in turn was associated with lower parent ($\beta = -.29$) and child ($\beta = -.22$) HPB adherence; all four indirect pathways were statistically significant (see Table 2).

The third model (see Figure 4) examined the role of family routines. In this model, no pathways from pre-COVID-19 family routines or disruption to family routines were statistically significant. However, family chaos during COVID-19 remained a statistically significant predictor of both parent ($\beta = -.27$) and child ($\beta = -.19$) HPB adherence.

Discussion

This study explored whether preexisting family vulnerability, disruption to the family during the pandemic, or family chaos during the pandemic predict parent and child HPB adherence. Across all three models, family chaos during COVID-19 was a robust predictor of subsequent parent and child HPB adherence. The disorganizing effect of family chaos may undermine caregiver capacity to limit children's activities, to stay at home, and to implement consistent practices around wearing masks and washing hands (Prime et al., 2020). Elevations in family chaos may be due in part to school and community closures, and reflect the increased time spent at home with family members (Prime et al., 2020) and increased functions of the household to accommodate remote education, remote work, and household tasks. However, as we discuss below, the findings also point to family relationship quality as a predictor of family chaos during COVID-19-related closures, offering insight into these risk pathways.

Family relationship quality, specifically family cohesion and conflict, were unique predictors of poor HPB adherence, over and above

Table 2
Summary of Model Fit and Coefficients

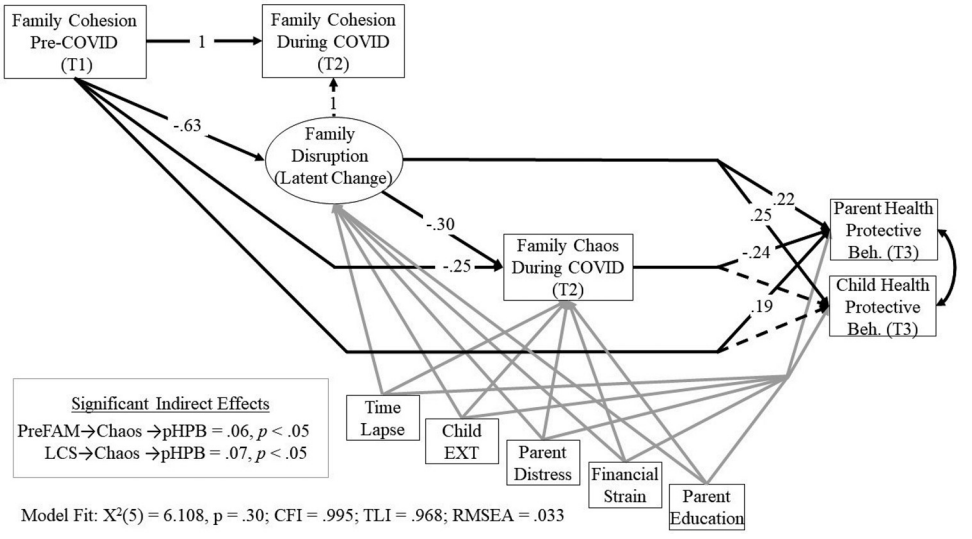
Model elements	Fit statistics	Family cohesion		Family conflict		Family routines	
		Fit	*p*	Fit	*p*	Fit	*p*
Model fit	Chi Square (5):	6.108	.296	4.616	.465	5.986	.308
	CFI	.995		1.000		.996	
	TLI	.968		1.000		.975	
	RMSEA	.033		.000		.031	
	Path coefficient	Std. B	*p*	Std. B	*p*	Std. B	*p*
Pre-existing vulnerability	Pre-Fam→pHPB	**.185**	**.041**	−.028	.782	.091	.285
	Pre-Fam→cHPB	.184	.055	.016	.886	.115	.196
Family disruption	LCS→pHPB	**.219**	**.013**	.066	.507	.060	.453
	LCS→cHPB	**.250**	**.008**	.094	.375	.161	.058
Chaos pathways	Pre-Fam→Chaos	**−.250**	**.004**	**.299**	**.001**	−.107	.167
	LCS→Chaos	**−.296**	**.000**	**.414**	**.000**	−.015	.843
	Chaos→pHPB	**−.238**	**.002**	**−.294**	**.000**	**−.272**	**.000**
	Chaos→cHPB	−.147	.082	**−.216**	**.013**	**−.190**	**.022**
Covariates predicting HPB	P. Distress→pHPB	.061	.429	.047	.557	.030	.695
	P. Distress→cHPB	.044	.587	.022	.793	.026	.753
	C. EXT→pHPB	−.050	.516	−.060	.443	−.060	.437
	C. EXT→cHPB	.036	.653	.020	.811	.030	.717
	Time lapse→pHPB	**.283**	**.000**	**.292**	**.000**	**.296**	**.000**
	Time lapse→cHPB	**.155**	**.031**	**.161**	**.029**	**.175**	**.015**
	Fin→pHPB	.005	.945	−.008	.916	.000	.996
	Fin→cHPB	−.019	.811	−.036	.655	−.020	.802
	P.Edu→pHPB	−.055	.435	−.034	.634	−.038	.595
	P.Edu→cHPB	−.044	.549	−.022	.768	−.034	.645
Covariates predicting Chaos	P. Distress→Chaos	.042	.571	.083	.260	.099	.191
	C. EXT→Chaos	**.184**	**.012**	**.152**	**.036**	**.206**	**.005**
	Time lapse→Chaos	**.146**	**.026**	.098	.130	**.147**	**.029**
	Fin→Chaos	.117	.110	.103	.148	.131	.079
	P.Edu→Chaos	.032	.635	−.009	.893	.005	.942
Covariates predicting LCS	Pre-Fam→LCS	**−.629**	**.000**	**−.704**	**.000**	**−.474**	**.000**
	P. Distress→LCS	**−.162**	**.011**	.024	.706	**−.162**	**.019**
	C. EXT→LCS	−.089	.183	**.161**	**.009**	−.015	.833
	Time lapse→LCS	.013	.825	.101	.062	−.014	.827
	Fin→LCS	−.064	.316	.111	.067	−.052	.461
	P.Edu→LCS	.113	.054	.018	.747	.095	.138
Standardized indirect effects	PreFAM-Chaos-pHPB	**.059**	**.035**	**−.088**	**.015**	.029	.198
	PreFAM-Chaos-cHPB	.037	.133	**−.065**	**.049**	.020	.234
	LCS-Chaos-pHPB	**.071**	**.020**	**−.122**	**.003**	.004	.843
	LCS-Chaos-cHPB	.044	.119	**−.089**	**.027**	.003	.844

Note. Standardized β coefficients reported. Bold indicates statistically significant paths ($p < .05$). Pre-Fam = pre-COVID-19 family functioning (cohesion, conflict, or routines, depending on model); LCS = Latent Change Score (reflecting family disruption process); cHPB/pHPB = child/parent protective behavior adherence; Chaos = family chaos; P. Distress = parent emotional distress (anxiety and depression); C. EXT = child externalizing problems; Fin = financial strain.

family chaos during the pandemic. Overall, our findings point to important benefits of family cohesion for HPB adherence through all three hypothesized pathways. First, family cohesion prior to COVID-19 was associated with higher parent HPB adherence. Second, decreases in family cohesion (i.e., family disruption) directly predicted poor parent and child HPB adherence. Third, both low preexisting levels and decreases in family cohesion were negatively associated with family chaos during COVID-19, which further accounted for

Figure 2

Family Cohesion and Chaos Pathways to Health Protective Behavior Adherence



variance in HPB adherence. Together, these findings speak to the importance of universal family programming that supports family cohesion as a resilience factor during periods of stress and for direct interventions aimed at minimizing disruptions to family cohesion. Our findings converge with prior work documenting that families that benefit from close, trusting relationships are better able to adopt and sustain new health practices, such as

Figure 3

Family Conflict and Chaos Pathways to Health Protective Behavior Adherence

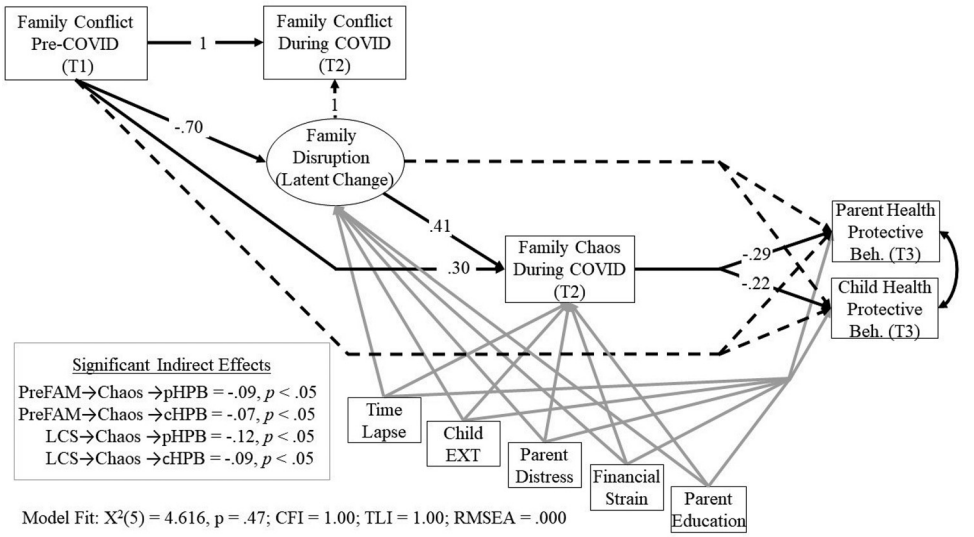
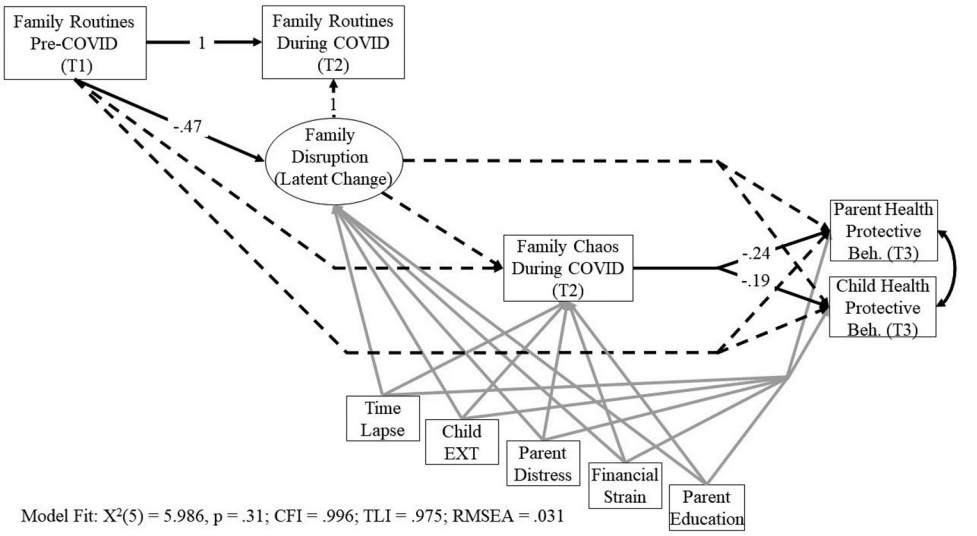


Figure 4

Family Routines and Chaos Pathways to Health Protective Behavior Adherence



healthy eating behaviors (Franko et al., 2008) and adherence to diabetes regimen; in this case, families that maintained cohesive relationships during COVID-19 were better able to adopt and adhere to HPBs.

The effect of family conflict on parent and child HPB adherence was apparent through the family chaos pathway. Families experiencing elevated conflict prior to COVID-19 onset in the United States, as well as those experiencing increases in family conflict from pre- to post-COVID-19 onset were more likely to have elevated family chaos. These findings converge with prior work documenting the dysregulating effects of conflict on family functioning (Anderson et al., 2002; Martin-Biggers et al., 2018), and suggest that efforts to reduce conflict, particularly conflict that increased during COVID-19 stay-at-home orders, may help reduce chaos and thereby support HPB adherence.

Our findings did not support the role of family routines in predicting HPB adherence. Our measure of routines focused on consistent and structured bedtime routines, family meals, and family activities. It may be that these aspects of family routines are not directly applicable to HPB adherence; rather, family relationship quality may be a more salient feature of adopting and adhering to HPB practices. However, it may also be that the implications of disrupted routines may be heterogeneous among families, depending on parents' essential work status, dual parent employment, unemployment, and number of children in the home, among other possible factors. Additionally, longer-term follow-up may also reveal different implications for family routines. Future work should explore whether reestablishing routines over a longer period of time offers different insights.

Implications for Prevention

Our findings offer multiple avenues for supporting family adherence to HPB prescriptions. First, our findings point to opportunities for family risk screening in pediatric or family practice settings for factors influencing HPB adherence, with family chaos, cohesion, and conflict as key risk indicators. This may be particularly relevant when assessing family risk for transmission of COVID-19 to immune-compromised individuals (e.g., families with a vulnerable member). Second, our findings suggest that family support efforts to reduce family chaos may promote HPB adherence. Family chaos may be reduced through structuring household activities, such as demarcating specific areas of the home for family members to use consistently (e.g., homework/study space), creating schedules for people to have access to TV or screen time that do not interfere with school or work responsibilities, and designated "quiet times" in the home to support

family members' needs. Additionally, practitioners may offer proactive strategies to support families in adhering to HPBs, such as embedding reminders in the home to wear masks and wash hands, to order/wash masks, or to keep extra masks in places where they would be accessible when needed (e.g., car, purse, near housekeys). Third, family support strategies that can bolster family cohesion and reduce family conflict may facilitate HPB adherence. Guidance to families to engage in small activities that promote feelings of closeness, unity, and togetherness, such as taking a walk together, family games, or reading together may help support HPB adherence. For families with elevated risk—such as those with high family conflict—referral for family-based interventions also may be warranted to aid in strengthening family relationship quality.

Limitations

This study was conducted with a primarily White sample and may be less generalizable to diverse families or those in urban settings. Data were collected using caregiver-report surveys; although alternatives were scarce, these methods are susceptible to mono-informant bias, shared method variance, and third-variable confounds that were not accounted for in this study. Other factors, unaccounted for in this study, such as inconsistent public-health messaging about HPBs, individual attitudes about the effectiveness of HPBs, political affiliation, and availability of materials such as masks may also have contributed to parent and child HPB adherence; future work might consider these factors underlying motivations for HPB adherence. Finally, these data reflect family experiences in the early stages (i.e., first 2 months) of the COVID-19 response in the United States. It is possible that the nature of risk for HPB adherence may change over the course of sustained public health efforts. Replication of our findings with other samples and during other periods of time during the pandemic would bolster confidence in our results.

Conclusions

Family-level functioning plays an important role in parent and child HPB adherence. Risk factors include: elevated family conflict and low family cohesion prior to COVID-19; disruptions to family conflict and cohesion during COVID-19; and level of family chaos during COVID-19. These findings point to malleable targets of intervention for family practitioners and pediatricians.

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