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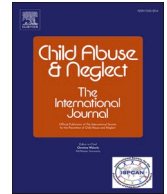
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Material hardship and parenting stress among grandparent kinship providers during the COVID-19 pandemic: The mediating role of grandparents' mental health

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ABSTRACT

Background: The COVID-19 pandemic has exposed the vulnerability of many families, including grandparent kinship families, to deal with a health/economic crisis. The fear of COVID-19 plus stay-at-home orders have increased individuals' psychological distress. Moreover, school closures and homeschooling further increased parenting stress among caregivers.

Objectives: This study examined the relationship between material hardship and parenting stress among grandparent kinship providers, and assessed grandparents' mental health as a potential mediator to this relationship during the COVID-19 pandemic in the United States.

Participants and setting: Grandparent kinship providers (N = 362) that took primary care of their grandchildren participated in a cross-sectional survey via Qualtrics Panels in June 2020 in the United States.

Methods: Descriptive and bivariate analyses, binary logistic regression, and mediation analyses were conducted using STATA 15.0.

Results: Suffering material hardship was significantly associated with higher odds of experiencing parenting stress among grandparent kinship providers, and grandparents' mental health partially mediated this association.

Conclusions: Addressing material and mental health needs among grandparent kinship providers is critical to decreasing their parenting stress.

1. Introduction

1.1. The effects of COVID-19 on grandparent kinship families

The coronavirus disease 2019 (COVID-19) pandemic has posed a serious risk to the physical and mental health of individuals, with stay-at-home orders impacting nearly all aspects of life for most (OECD, 2020). Families headed by grandparents are no exception. While practicing social distancing and quarantine, grandparent kinship families warrant particular consideration during the COVID-19 pandemic because of their increased vulnerability. To identify the most vulnerable populations and communities, the [The Centers for](#)

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Disease Control and Prevention (2016) has developed a comprehensive social vulnerability index. It states that the economically vulnerable, the elderly and people of color, are disproportionately affected by disasters like COVID-19 (Nelson, 2020). In the United States, about 7,249,122 grandparents live with their own grandchildren under 18 years old, and 34.8 % of them are responsible for grandchildren (United States Census Bureau, 2012-2016). Grandparent kinship providers fall into this most vulnerable population mostly because of their age (e.g., 50 years), low socioeconomic status (e.g., 52 % lived below the poverty line), being a minority (e.g., 43.1 % minority), and having limited access to resources and support (e.g., received fewer financial support, parenting training, peer support groups, respite care support than foster parents; Sakai, Lin, & Flores, 2011; Xu, Bright, Barth, & Ahn, 2020).

The COVID-19 pandemic has caused an immediate economic crisis for many families, particularly those that were already economically vulnerable. During this unprecedented pandemic, many grandparent-headed families have difficulties with access to sufficient food, stable income, and housing stability (Simmons, 2020). In addition to these severe financial impacts, another consequence is increased psychological distress, particularly among caregivers that have pre-existing mental health problems or have recovered from mental illness (Holmes et al., 2020; Qiu et al., 2020). Due to loss of access to mental health services and positive physical and social activities, Holmes et al. (2020) pointed out that COVID-19 might lead to severe mental health problems, such as anxiety, depression, and even suicide.

Since the outbreak of COVID-19, stay-at-home orders have caused millions of children to remain out of school or childcare (The United Nations Educational, Scientific, & Cultural Organization, 2020). Staying at home continually creates new challenges for grandparents that are primary caregivers for their grandchildren. For instance, it may increase conflicts between grandparents and grandchildren, and homeschooling may intensify parenting hardship (Herd et al., 2020), given some grandparents lacked parenting and educational skills and resources prior to the pandemic (Wu, Zhu, Ogbonnaya, Zhang, & Wu, 2020). In sum, COVID-19 and its social and economic consequences may have diminished grandparent kinship providers' economic and psychological well-being, and increased parenting stress. Thus, this study aims to examine the relationship between material hardship and parenting stress among grandparent kinship providers, and determine if grandparents' mental health is a mediator in this relationship.

1.2. Theoretical frameworks

1.2.1. Family economic stress model

The family economic stress model provides a framework to understand how the pandemic may have impacted grandparent kinship families (Conger & Elder, 1994). This model describes a process through which family material hardship influences parental psychological distress, subsequently resulting in increased parenting stress (Conger & Elder, 1994). This theoretical framework illustrates a process in which family material hardship initially increases caregivers' psychological distress, such as depression and anxiety, leading to disrupted parenting and decreased parenting efficacy (Conger & Elder, 1994). The family economic stress model provides a conceptual framework for examining the direct relationship between material hardship and parenting stress, as well as the mediating role of grandparent kinship providers' mental health. Material hardship is hypothesized to have a direct and negative relationship with grandparent kinship providers' mental health, and their mental health is hypothesized to have a direct and negative relationship with their parenting stress.

1.2.2. The determinants of parenting

Belsky's (1984) determinants of parenting framework also contributes to the understanding of the parenting process. According to Belsky (1984), parenting is the interactive result of caregivers' attributes (including demographics and psychological well-being), the child's characteristics (including demographics, child temperament, and behavioral styles), and the social context in which parent-child relationships are embedded, all of which provide caregivers sources of stress and support (Belsky, 1984). These determinants of parenting provide a reference framework for the selection of characteristics of grandparents and their grandchildren as control variables that contribute to parenting stress.

1.3. Kinship families and their profiles

Kinship care refers to extended families assuming care for children when the biological parents are unable to do so, and the majority of kinship providers are grandparents (The U.S. Department of Health & Human Services, 2004). In the United States, kinship care can be by formal or informal arrangement. Formal kinship care occurs when children are in the custody of a public child welfare agency, mostly as a result of child abuse and neglect, while informal kinship care is arranged privately between parent and caregiver (The U.S. Department of Health & Human Services, 2004). In 2018, about 140,000 children that were abused and/or neglected were placed in formal kinship care (The U.S. Department of Health & Human Services, 2019). In contrast, more than 2.5 million grandparents took primary care of their grandchildren by private arrangements with the biological parents (Anderson, 2019). The most common trigger events for placement in informal kinship care are parental substance abuse, parental abandonment, parental mental illness, military deployment, and poverty (Barrio & Hughes, 2000; Lee, Ensminger, & LaVeist, 2005). Since 2013, an increased number of grandparents have assumed care of grandchildren due to the opioid crisis (Anderson, 2019). Although the *Supporting Grandparents Raising Grandchildren Act* (P. L. 115-196) of 2018 stresses the importance of providing more resources to support custodial grandparents, grandparent kinship providers are still underserved even though they face multiple challenges (The United States Senate Special Committee on Aging, 2018). Despite the vulnerability of custodial grandparents, informal kinship care is largely understudied, in part because these caregivers are not under the supervision of the child welfare system, and this makes them difficult to identify in the community (Lin, 2018).

1.4. Material hardship

One of the most significant challenges facing grandparent kinship families is that of economic hardship (Ehrle & Geen, 2002; Xu, Bright, Ahn, Huang, & Shaw, 2020). While about half of formal kinship caregivers (primarily grandparents) and about one-third of grandparent caregivers (including informal kinship providers) live below the poverty line (Baker & Mutchler, 2010; Xu, Bright, Ahn et al., 2020), this measure does not take into account specific and unique material hardships that may exist regardless of a family's poverty threshold (Pilkauskas & Dunifon, 2016). For this reason, there is increasing recognition of the need to apply a more comprehensive measure of family economic well-being, such as material hardship (Pilkauskas & Dunifon, 2016), often of specific types, including food and housing insecurity (Simmons, 2020).

Material hardship is a multi-dimensional measure of family economic well-being, including food insecurity, housing insecurity, and hardships related to utility, medical and daily expenses (Rose, Parish, & Yoo, 2009). Pilkauskas and Dunifon (2016) found that grandparent-headed families were at a high risk of experiencing poverty and all types of material hardship, while Baker and Mutchler (2010) found that children living in grandparent-headed skipped-generation households experienced elevated risk of some dimensions of material hardships, such as medical hardship, but not food insecurity and housing insecurity. Risk factors associated with experiencing these material hardships included demographic compositions of households (e.g., older age, single female, racial/ethnic minority-headed households), low labor force participation rates, higher rates of physical and mental disabilities, and unexpected and informal care arrangements (i.e., private arrangements between biological parents and grandparents made without prior notice) in grandparent-headed households (Baker & Mutchler, 2010).

1.5. Grandparent kinship providers' mental health

In addition to material hardship, grandparents experience certain levels of psychological distress in raising grandchildren (Choi, Sprang, & Eslinger, 2016; Kelley, Whitley, & Campos, 2013). Studies have found that grandparent kinship providers had poorer mental health and experienced more depression and anxiety than their non-caregiving counterparts (Dunne & Kettler, 2008; Minkler, Fuller-Thomson, Miller, & Driver, 2000). Kelley et al. (2013) found that 40 % of African American grandmothers had a clinically significant depressive symptom. Similarly, Lee and Jang (2019) found that 41 % of custodial grandparents in a Northeastern state had clinical depression. In terms of risk and protective factors related to caregivers' mental health, lower household income, a short length of care as a primary caregiver, and a higher level of stress contributed to grandparents' depressive symptoms (Letiecq, Bailey, & Kurtz, 2008). Social support was found to decrease grandparents' depressive symptoms (Lee & Jang, 2019; Sobol & Ben Shlomo, 2019; Whitley, Kelley, & Lamis, 2016).

1.6. Grandparent kinship providers' parenting stress

Grandparents who raise grandchildren experience a high level of psychological distress, and the distress, along with financial struggles, may contribute to parenting stress (Kelley, Whitley, Sipe, & Yorker, 2000; Lee, Clarkson-Hendrix, & Lee, 2016; Ross & Aday, 2006). However, empirical studies investigating parenting stress among grandparent kinship caregivers are limited. Lee et al.'s (2016) mixed-methods study showed that grandparent kinship providers had higher levels of parenting stress than other kinship providers. Kelley et al. (2000) found that 30 % of custodial grandmothers had clinically significant parenting stress. Moreover, Ross and Aday (2006) found that 92 % of custodial grandparents identified clinically significant levels of parenting stress among African American grandparents. Previous studies identified some risk factors associated with parenting stress among grandparent kinship providers, which included lack of economic resources (Butler & Zakari, 2005; Minkler & Fuller-Thomson, 2005), unmet family needs (Lee et al., 2016), poor health and emotional well-being of caregivers (Gerard, Landry-Meyer, & Guzella Roe, 2006; Leder, Grinstead, & Torres, 2007; Lee et al., 2016), grandchildren's behavioral problems (Gerard et al., 2006; Leake, Wood, Bussey, & Strolin-Goltzman, 2019; Smith & Palmieri, 2007), lack of social support (Butler & Zakari, 2005; Leder et al., 2007; Sands & Goldberg-Glen, 2000; Sharda, Sutherby, Cavanaugh, Hughes, & Woodward, 2019), lack of family competence (e.g., family's inability to solve problems, express emotions, and facilitate individual autonomy; Gleeson, Hsieh, & Cryer-Coupet, 2016), and the transition to become primary caregivers for grandchildren (Landry-Meyer & Newman, 2004; Orb & Davey, 2005). Prior research has indicated that a high level of caregivers' parenting stress is associated with an increased likelihood of child abuse and neglect (Holden & Banez, 1996). In particular, child maltreatment risk is heightened but underreported during the pandemic due to COVID-19 related stressors, school closures, and interruptions in social services (Bhopal, Buckland, McCrone, Willis, & Owens, 2020). Thus, understanding grandparent kinship caregivers' parenting stress is critical for the safety of children in kinship care during this pandemic.

1.7. The present study

Although several studies have examined risk and protective factors associated with parenting stress among grandparent kinship providers, less research has investigated the relationship between material hardship and parenting stress and the mechanism that links the mediating pathway between them. Material hardship is one of the most significant challenges in grandparents-headed households during the COVID-19, and the pandemic may have intensified relationships between material hardship, mental health, and parenting stress. To fill this research gap, this study aims to examine the relationship between material hardship and parenting stress and the mediating role of grandparents' mental health in that relationship during the COVID-19 pandemic. The hypotheses of this study include: (1) suffering more material hardship is associated with higher odds of experiencing parenting stress; and (2) grandparents'

mental health mediates the relationship between material hardship and parenting stress among grandparent kinship providers. Overall, this study contributes to the understanding of the relationships among material hardship, mental health, and parenting stress among grandparent kinship families in the context of COVID-19.

2. Method

2.1. Study design and procedure

We used Qualtrics Panels to collect cross-sectional survey data from grandparent kinship providers. Qualtrics has a database that includes millions of U.S. residents who have consented to participate periodically in survey research. Use of Qualtrics Panels surveys to collect data has increased in social work research (e.g., DeVylder et al., 2017). To recruit eligible grandparent kinship providers, a convenient and purposive sampling method was used. Several eligibility screening questions were used. First, we asked whether the participant was currently a primary caregiver of their grandchildren. If their answer was a “Yes,” we further asked whether at least one of their grandchild’s biological parents lived in the same household as them most of the time. If their answer was a “No”, they were eligible for this study. We excluded participants who identified themselves living outside of the U.S., were born after 1985, and had no children residing in the household when they answered these screening questions. To improve the quality of the survey, we also included a screening question asking participants whether they were committed to providing their thoughtful and honest answers to questions in this survey. Participants who selected “they will provide their best answers” were invited to continue answering our survey questions.

A total of 1908 participants responded to our survey; 362 (19 %) met our inclusion criteria. Participants were financially compensated at a rate determined by Qualtrics, which was under \$14/participant to prevent potential financial coercion. Data were collected in about four weeks of June 2020. The survey took approximately 13 min to complete, and the participants’ responses were anonymous. The current study was reviewed by the Institutional Review Board of the first author’s University and received a determination of exempt for human subjects.

2.2. Measures

2.2.1. Independent variable: material hardship

Material hardship was measured by seven dichotomous questions (1 = Yes and 0 = No). Participants were asked whether there was any time during the COVID-19 pandemic that they were not able to pay the full amount of rent or mortgage, experienced housing instability, had experienced disconnected gas/electricity, telephone, or internet service due to unmade payments, did not go for needed medical visits, or went hungry due to the lack of food. We adopted these seven items from the material hardship scale used in Fragile Families and Child Well-being Study (The Bendheim-Thoman Center for Research on Child Wellbeing, 2018). The summative score of the seven types of material hardships (ranging from 0 to 7) was used as a continuous variable with a higher score indicating more material hardship during the COVID-19 pandemic. The Cronbach’s alpha of this scale was 0.74 in this study.

2.2.2. Dependent variable: parenting stress

A scale derived from Abidin’s (1995) Parent Stress Inventory was used to assess grandparent kinship providers’ parenting stress during the COVID-19 pandemic. Following prior research (Ben Shlomo, 2014), we changed “parents” to “grandparents” and “child” to “grandchildren.” Items included “being a grandparent is harder than I thought it would be”, “I feel trapped by my responsibilities as a grandparent”, “I find that taking care of my grandchild/ren is much more work than pleasure”, and “I am often tired, worn out, exhausted from raising my grandchild/ren”. Responses were recorded on a 4-point response scale (1 = Strongly disagree and 4 = Strongly agree). The reliability of this scale was 0.85 in this sample. Because the average score of these four items was not normally distributed, we recoded this average score as a dichotomous variable using three as a cutoff value (1 = Yes and 0 = No). This cutoff score corresponds to the third point on a 4-point scale, so scores ≥ 3 meant grandparents had experienced grandparenting stress, and < 3 that they had not. Therefore, “agree” and “strongly agree” were collapsed into the “yes” category, and “disagree” and “strongly disagree” were collapsed into the “no” category.

2.2.3. Mediator: grandparents’ mental health

Grandparents’ mental health was measured by a short-version Mental Health Inventory-5 (MHI-5), a brief version of the 38-item MHI developed by Veit and Ware (1983) used in a major national study of medical outcomes (Stewart et al., 1988). The short version has been widely used among the general population to measure individuals’ psychological well-being (Berwick et al., 1991). Prior psychometric research indicated MHI-5 was a valid and reliable measure in population-based samples (Cuijpers, Smits, Donker, Ten Have, & de Graaf, 2009; Elovainio et al., 2020). There are five items that assess individuals’ mood during the past month, and these include the presence of psychological well-being (two items: feel calm and peaceful and have been a happy person) and psychological distress (three items: feel nervous, downhearted and blue, and feel down). Responses are on a 6-point Likert scale (1 = None of the time and 6 = All of the time). We reverse coded the three psychological distress items, and an average score of the five items was used, with a higher score indicating better mental health. The reliability of this scale was 0.59 in this study.

Table 1
Descriptive and Bivariate Results (N = 362).

Variable	Total (n = 362)			Parenting stress				χ^2/t test	p
	N	%/Mean (SD)	Range	Yes (n = 102; 28.18 %)		No (n = 260; 71.82 %)			
Independent variable									
Material hardship	362	1.62 (1.82)	0–7	102	2.84 (2.10)	260	1.13 (1.43)	–8.86	<0.001***
Mediator									
Grandparents' mental health	362	3.97 (1.01)	1.4–6	102	3.40 (0.81)	260	4.19(0.99)	7.16	<0.001***
Control variables									
Trigger event									
Child abuse and neglect	26	7.18 %		5	4.90 %	21	8.08 %	10.74	0.15
Parental incarceration	18	4.97 %		6	5.88 %	12	4.62 %		
Parental mental illness	29	8.01 %		9	8.82 %	20	7.69 %		
Parental death	34	9.39 %		10	9.80 %	24	9.23 %		
Parental substance abuse	62	17.13 %		26	25.49 %	36	13.85 %		
Parental intimate partner violence	20	5.52 %		4	3.92 %	16	6.15 %		
Parental economic needs	122	33.70 %		33	32.35 %	89	34.23 %		
Other	51	14.09 %		9	8.82 %	42	16.15 %		
Grandparent race									
White	246	68.72 %		59	58.42 %	187	72.76 %	6.94	0.01*
Non-White	112	31.28 %		42	41.58 %	70	27.24 %		
Grandparent gender									
Male	136	37.57 %		52	50.98 %	84	32.31 %	10.89	0.001**
Female	226	62.43 %		50	49.02 %	176	67.69 %		
Grandparent age	362	56.5 (7.75)	42–90	102	55.02 (8.35)	260	57.08 (7.43)	2.29	0.02*
Grandparent marital status								7.80	0.005**
Married	252	69.61 %		82	80.39 %	170	65.38 %		
Other	110	30.39 %		20	19.61 %	90	34.62 %		
Grandparent household income in 2019									
≤30,000	103	29.28 %		32	31.37 %	74	28.46 %	1.59	0.45
30,000 - <60,000	135	37.29 %		41	40.20 %	94	36.15 %		
>60,000	121	33.43 %		29	28.43 %	92	35.38 %		
Grandparent education									
Below college	218	60.22 %		34	33.33 %	110	42.31 %	2.46	0.12
College and above	144	39.78 %		68	66.67 %	150	57.69 %		
Grandparent physical health	361	3.48 (1.01)	1–5	102	3.81 (1.06)	259	3.35 (1.06)	–3.77	0.01*
Number of children in the household									
One child	64	17.68 %		54	52.94 %	137	52.69 %	0.01	0.97
More than one child	298	82.32 %		48	47.06 %	123	47.31 %		
Relationship to the child									
Maternal grandmother	131	37.32 %		29	29.00 %	102	40.64 %	6.86	0.08
Paternal grandmother	89	25.36 %		24	24.00 %	65	25.90 %		
Maternal grandfather	24	6.84 %		7	7.00 %	17	6.77 %		
Paternal grandfather	107	30.48 %		40	40.00 %	67	26.69 %		
Years of care									
One year or less than one year	77	19.15 %		12	11.76 %	52	20 %	3.41	0.07
More than one year	325	80.85 %		90	88.24 %	208	80 %		
Licensed kinship caregivers									
Yes	143	39.61 %		65	63.73 %	78	69.88 %	34.56	<0.001***
No	218	60.39 %		37	36.27 %	181	30.12 %		
Labor force status									
Full time	176	49.44 %		55	54.46 %	121	47.45 %	5.22	0.07
Part time	64	17.98 %		22	21.78 %	42	16.47 %		
Don't work	116	32.58 %		24	23.76 %	92	36.08 %		
Financial stress									
Yes	231	63.81 %		70	68.63 %	161	61.92 %	1.43	0.23
No	131	36.19 %		32	31.37 %	99	38.08 %		
Child age	358	9.53 (4.68)	0–19	98	8.94 (4.15)	260	9.75 (4.85)	1.47	0.14
Child gender									
Male	195	54.02 %		63	61.76 %	132	50.97 %	3.44	0.06
Female	166	45.98 %		39	38.24 %	127	49.03 %		
Child physical health	362	4.45 (0.74)	1–5	102	4.43 (0.78)	260	4.46 (0.73)	0.30	0.76
Child mental health	362	4.25 (0.96)	1–5	102	4.16 (1.05)	260	4.28 (0.92)	1.14	0.26

Note. *: p < 0.05; **: p < 0.01; ***: p < 0.001.

2.2.4. Control variables

2.2.4.1. Grandparent characteristics. A number of control variables at the grandparent-level were included in this study. Eight dummy coded variables (child abuse and neglect, parental incarceration, parental mental illness, parental death, parental substance abuse, parental intimate partner violence, parental economic needs, and other) were included to describe trigger events for grandparents becoming the primary caregivers. Grandparents' characteristics included their race (1 = *Non-White* and 0 = *White and non-Hispanic*); gender (1 = *Female* and 0 = *Male*); marital status (1 = *Not married* and 0 = *Married*); household income (1 = *Less than \$ 30,000*, 2 = *Between \$ 30,000 and \$ 60,000*, and 3 = *More than \$ 60,000*, with *Less than \$ 30,000* as reference group); education (1 = *Below college* and 0 = *College and above*); number of children in the household (1 = *One child* and 0 = *More than one child*); relationship to the child (1 = *Maternal grandmother*, 2 = *Paternal grandmother*, 3 = *Maternal grandfather*, and 4 = *Paternal grandfather*, with maternal grandmother as reference group); years of caring grandchildren (1 = *More than one year* and 0 = *One year or less*); licensed kinship caregivers (1 = *Yes* and 0 = *No*); labor force status (1 = *Full time*, 2 = *Part time*, and 3 = *Don't work because of retirement*, with working full time as reference group); and financial stress during COVID-19 (1 = *Yes* and 0 = *No*). Financial stress was measured by the question "when it comes to money and making ends meet during the COVID-19 pandemic, how do you think things are going for you?." The original responses were 1 = saving a little money, 2 = just getting by, 3 = struggling to make it, and 4 = no impact financially. We recoded it as a dichotomous variable with "saving a little money" and "no impact financially" being no financial pressure, and collapsed "just getting by" and "struggling to make it" as indicating financial pressure. Grandparents' age was measured by year as a continuous variable, with their physical health (1 = *Poor* and 5 = *Excellent*) treated as a continuous variable, with higher scores indicating better physical health status. Of note, some of these categorical variables were recoded, mostly due to the small number of participants in certain categories.

2.2.4.2. Child characteristics. Control variables at the child level included child age, child gender (1 = *Female* and 0 = *Male*), child physical health, and child mental health. If participants had more than one grandchild in the household, all these questions were about their oldest grandchild. Child age was a continuous variable measured by year. Child physical and mental health were measured by grandparents' self-report of their child's physical and mental health status using a 5-point scale (1 = *Poor* and 5 = *Excellent*), respectively. Higher scores indicated better physical and mental health status.

2.3. Data analysis

Descriptive analyses, *t*-tests, chi-square tests, binary logistic regression, and mediation analysis were conducted using STATA 15.0. *T*-tests and chi-square tests were conducted to compare demographic differences between grandparent kinship providers that reported experiencing parenting stress and their counterparts that had no parenting stress. To test the mediating role of grandparents' mental health, we followed a four-step mediation analysis approach (Baron & Kenny, 1986; Hicks & Tingley, 2011). We conducted regression models through the following four steps: (1) the regression of the dependent variable (i.e., parenting stress) on the independent variable (i.e., material hardship); (2) the regression of the mediator (i.e., grandparents' mental health) on the independent variable (i.e., material hardship); (3) the regression of the dependent variable (i.e., parenting stress) on the mediator (i.e., grandparents' mental health), controlling for the independent variable (i.e., material hardship), and (4) the regression of the dependent variable (i.e., parenting stress) on the independent variable (material hardship), controlling for the mediator (grandparents' mental health). Because logistic and linear regression coefficients were not comparable in scale, we also included regression coefficients of binary logistic regression models in addition to odds ratios.

Model assumptions for logistic regression were tested. To assess multicollinearity among the independent variable, the mediator, and control variables, the variance inflation factor (VIF) test was conducted with VIF scores ranging from 1.21 (the child's gender) to 7.68 (the grandparent's gender). Because VIF scores were less than 10, no problematic multicollinearity was detected (Hair, Anderson, Tatham, & Black, 1995). The sample size ($N = 362$) was sufficient for a model with twenty predictors, according to the rule that the number of events per variable is at least 10 (Peduzzi, Concato, Kemper, Holford, & Feinstein, 1996). In addition, no problematic outliers were identified, and no individual observation fell outside commonly accepted thresholds (Orme & Combs-Orme, 2009). Missing data ranged from 0.28 % (e.g., child gender, child physical health, license status) to 3.04 % (e.g., relationship to the child).

3. Results

3.1. Sample characteristics

The sample included 362 grandparent kinship providers who were primary caregivers to one or more grandchildren, with 60.39 % grandparents identifying as unlicensed kinship caregivers, and 39.61 % as licensed kinship caregivers (See details in Table 1). In terms of trigger events to raising their grandchildren, 33.70 % were due to parental economic needs, followed by parental substance abuse (17.13 %), parental death (9.39 %), parental mental illness (8.01 %), parental intimate partner violence (5.52 %), and parental incarceration (4.97 %). Other (14.09 %) identified reasons included parental abandonment, parents serving in the military, parents' work schedules, and the child's behavioral problem. The average age of grandparents was 56.5 years old ($SD = 7.75$), and most of them were White ($n = 246$; 68.72 %), female ($n = 226$; 62.43 %), married ($n = 252$; 69.61 %), and had received education below college ($n = 218$; 60.22 %). About half of them had full-time jobs ($n = 176$; 49.44 %), and about one-third of them had household income in 2019

Table 2
Material Hardship and Parenting Stress: Binary Logistic Regression Results (N = 335).

	Model 1			Model 2		
	B (SE)	OR (SE)	p	B (SE)	OR (SE)	p
Key variables						
Material hardship	0.52 (0.11)	1.67 (0.19)	< 0.001***	0.43 (0.12)	1.53 (0.18)	< 0.001***
Grandparent mental health	–	–	–	–0.59 (0.20)	0.56 (0.11)	0.002**
Control variables						
Trigger event (reference group: Child abuse and neglect)						
Parental incarceration	1.39 (0.98)	4.00 (3.91)	0.16	1.37 (1.00)	3.94 (3.95)	0.17
Parental mental illness	0.96 (0.88)	2.60 (2.28)	0.28	0.83 (0.89)	2.29 (2.04)	0.35
Parental death	1.43 (0.89)	4.19 (0.34)	0.11	1.34 (0.91)	3.83 (3.49)	0.14
Parental substance abuse	2.08 (0.76)	8.00 (6.07)	0.01*	1.93 (0.77)	6.87 (5.32)	0.01*
Parental intimate partner violence	0.12 (0.93)	1.13 (1.05)	0.89	–0.11 (0.95)	3.03 (2.28)	0.91
Parental economic needs	1.13 (0.74)	3.10 (2.29)	0.13	1.11 (0.75)	3.03 (2.28)	0.14
Other	1.43 (0.82)	4.16 (3.41)	0.08	1.23 (0.84)	3.42 (2.89)	0.14
Grandparent race: Non-White (reference group: White)	–0.01 (0.36)	0.10 (0.36)	0.99	0.11 (0.36)	1.11 (0.41)	0.77
Grandparent gender: Female (reference group: Male)	–1.15 (0.87)	0.32 (0.28)	0.19	–1.16 (0.86)	0.31 (0.27)	0.18
Grandparent age	–0.02 (0.02)	0.98 (0.02)	0.27	–0.01 (0.02)	0.99 (0.02)	0.62
Grandparent marital status: Not married (reference group: Married)	–0.49 (0.42)	0.61 (0.26)	0.24	–0.42 (0.43)	0.66 (0.28)	0.32
Grandparent household income (reference group: <= 30,000)						
30,000< = 60,000	–0.24 (0.41)	0.79 (0.33)	0.57	–0.30 (0.41)	0.74 (0.31)	0.47
>60,000	–0.10 (0.46)	0.91 (0.41)	0.83	–0.07 (0.46)	0.93 (0.43)	0.88
Grandparent education: Below college (reference group: College and above)	0.47 (0.37)	1.59 (0.58)	0.20	0.51 (0.38)	1.67 (0.63)	0.17
Grandparent physical health	0.37 (0.19)	1.44 (0.27)	0.05	0.40 (0.19)	1.49 (0.29)	0.04*
Number of children: More than one child (reference group: One child)	–0.32 (0.34)	0.72 (0.25)	0.34	–0.32 (0.44)	0.73 (0.25)	0.36
Relationship to the child (reference group: Maternal grandmother)						
Paternal grandmother	–0.27 (0.42)	0.77 (0.32)	0.53	–0.37 (0.44)	0.69 (0.30)	0.40
Maternal grandfather	–1.64 (1.04)	0.19 (0.20)	0.11	–1.62 (1.03)	0.20 (0.20)	0.11
Paternal grandfather	–1.45 (0.91)	0.23 (0.21)	0.11	–1.39 (0.90)	0.25 (0.22)	0.12
Years of care: More than one year (reference group: ≤ one year)	0.15 (0.43)	1.17 (0.50)	0.72	0.15 (0.44)	1.16 (0.51)	0.74
Licensed kinship caregivers (reference group: Unlicensed)	0.88 (0.39)	2.42 (0.94)	0.02*	0.65 (0.41)	1.92 (0.78)	0.11
Labor force status (reference group: Full time)						
Part time	0.25 (0.44)	1.28 (0.56)	0.57	0.17 (0.45)	1.18 (0.53)	0.71
Don't work	0.53 (0.36)	2.22 (1.08)	0.10	0.79 (0.50)	2.21 (1.10)	0.11
Financial stress (reference group: No)	0.53 (0.36)	1.69 (0.60)	0.14	0.46 (0.37)	1.58 (0.58)	0.21
Child age	–0.02 (0.04)	0.98 (0.04)	0.66	–0.04 (0.04)	0.96 (0.04)	0.41
Child gender: Female (reference group: Male)	–0.18 (0.33)	0.83 (0.27)	0.58	–0.13 (0.34)	0.88 (0.30)	0.70
Child physical health	0.11 (0.24)		0.64	0.09 (0.25)		0.72

(continued on next page)

Table 2 (continued)

	Model 1			Model 2		
	B (SE)	OR (SE)	p	B (SE)	OR (SE)	p
		1.12 (0.27)			1.09 (0.27)	
Child mental health	-0.56 (0.20)	0.57 (0.11)	0.01*	-0.45 (0.20)	0.64 (0.13)	0.02*
Pseudo R ²		0.26			0.29	

Note. p < 0.05; **: p < 0.01; ***: p < 0.001.

below \$30,000. Results showed that 63.81 % of them experienced financial stress during the COVID-19 pandemic. More than 80 % of grandparents were the primary caregivers of more than one child in their household, and had taken care of their grandchildren for more than one year. The average caregiver’s physical health was 3.48 out of 5 with higher scores indicating better physical health conditions. Grandparent kinship providers’ mental health was 3.97 out of 6. Similarly, a higher score indicated better mental health.

The average child age was ten years old (M = 9.53, SD = 4.68), and just over half were boys (n = 195; 54.02 %). Average child’s physical and mental health scores were 4.45 and 4.25 out of 5, respectively, with higher scores indicating better physical or mental health. Among the seven material hardships, participating households experienced 1.62 (SD = 1.82) types of material hardships, on average, during the COVID-19 pandemic.

A total of 28.18 % (n = 102) of grandparents agreed that they experienced parenting stress during the COVID-19 pandemic. A comparison between grandparent kinship providers that experienced parenting stress and those that did not found that the latter had a significantly lower score on experiencing material hardship (M = 1.13 vs. M = 2.84; t₃₆₀ = -8.86, p < 0.001). Similarly, grandparents that did not report parenting stress had significantly better mental health status (M = 4.19 vs. M = 3.40; t₃₆₀ = 7.17, p < 0.001). Grandparents that reported parenting stress and those that did not were also significantly different in race (χ²(1) = 6.94, p = 0.01), gender (χ²(1) = 10.89, p = 0.001), marital status (χ²(1) = 7.80, p = 0.005), age (t₃₆₀ = 2.29, p = 0.02), physical health (t₃₆₀ = -3.77, p = 0.01), and license status (χ²(1) = 34.56, p = 0.001). These results indicate that grandparents that were either White, female, married, older, licensed, or had poorer physical health status were less likely to report parenting stress.

3.2. Predictors of parenting stress

Table 2 presents two binary logistic regression models predicting parenting stress without the mediation effect. The first model regressed parenting stress on material hardship (grandparents’ mental health was not included as a predictor), controlling for other covariates. Model 1 showed that material hardship was significantly associated with increased odds of experiencing parenting stress (OR = 1.67, p < 0.001). Other significant covariates included parental substance abuse (OR = 8.00, p = 0.01), being a licensed kinship caregiver (OR = 2.42, p = 0.02), and child mental health (OR = 0.57, p = 0.01). The second model examined the relationships between material hardship, grandparents’ mental health, and parenting stress, when controlling for other covariates. Model 2 showed that the association between material hardship and parenting stress was positive (OR = 1.53, p < 0.001), while the association between grandparents’ mental health and parenting stress was negative (OR = 0.56, p = 0.002). In other words, suffering material hardship was associated with 1.53 greater odds of experiencing parenting stress, but caregivers who had better mental health had 0.56 lower odds of experiencing grandparenting stress. Other significant covariates in Model 2 included parental substance abuse (OR = 6.87, p = 0.01),

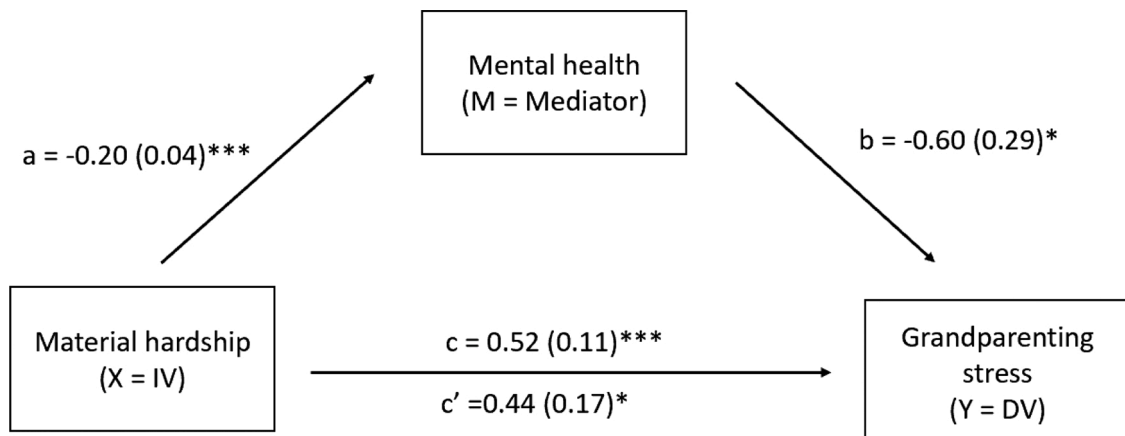


Fig. 1. Grandparents’ Mental Health Mediates the Relationship between Material Hardship and Parenting Stress.

Note. a = Independent variable (IV) to Mediator (M), b = direct effect of M on Dependent variable (DV) while controlling for X, c = total effect of IV on DV, c’ = direct effect of IV on DV while controlling for M. All the covariates were controlled in this model. *: p < 0.05; **: p < 0.01; ***: p < 0.001.

caregiver's physical health (OR = 1.49, $p = 0.04$), and child mental health (OR = 0.64, $p = 0.02$).

3.3. Mediation by grandparents' mental health

Fig. 1 presents the results for the mediational model. Step 1 found that material hardship was a significant predictor of parenting stress ($B = 0.52$, $p < 0.001$) (path c, Fig. 1). Step 2 showed that material hardship was significantly associated with grandparents' mental health ($B = -0.20$, $p < 0.001$) (path a, Fig. 1). In step 3, grandparents' mental health was found to be a significant predictor of parenting stress ($B = -0.60$, $p = 0.037$) (path b, Fig. 1), controlling for material hardship. In the final step, when grandparents' mental health was included as a control variable, the strength of the relationship between material hardship and parenting stress reduced ($B = 0.44$, $p = 0.008$), indicating that grandparents' mental health was a partial mediator (path c', Fig. 1). The results from the bootstrap estimation procedure demonstrated a significant indirect effect (indirect effect = 0.11, 95 % CI [0.01, 0.25]). In addition, results showed that 18 % of the path between material hardship and parenting stress was explained by grandparents' mental health.

4. Discussion and conclusion

4.1. Discussion

The COVID-19 pandemic has brought dramatic changes to economic and psychological aspects of individuals' lives (OECD, 2020). It adds new challenges for grandparent kinship providers, heightening their preexisting vulnerabilities due to financial difficulties (Pilkauskas & Dunifon, 2016), fragile mental and physical health (Leder et al., 2007), and social isolation (Choi et al., 2016; Gleeson et al., 2016). This study examined the relationship between grandparent kinship providers' material hardship and their parenting stress during the pandemic, as well as the mediating mechanism in this relationship via grandparents' mental health. Findings fully support hypotheses that the more material hardship grandparents have during the COVID-19 pandemic, the higher likelihood for their experiencing parenting stress, and that this relationship is partially mediated by grandparents' mental health. This finding is consistent with previous studies that economic disadvantage and material hardship is positively associated with kinship caregivers stress (Butler & Zakari, 2005; Kelley et al., 2000; Minkler & Fuller-Thomson, 2005). This finding suggests that the ability to meet basic living needs is critical for grandparent kinship providers' psychological well-being and parenting practices. Different from non-kinship foster care providers, the majority of grandparent kinship providers usually take on child care responsibilities through last-minute requests from child welfare agencies or the child's biological parents (Wu & Snyder, 2019). It is possible that the economic conditions of these grandparent caregiver families may not be adequate to take care of the child. As kinship providers have experienced hardship in terms of different needs or resources for living during the pandemic, such as food, housing, electricity, or internet, their lives have been affected dramatically, and their stress level has been undoubtedly increased (Simmons, 2020).

The findings of this study suggest that grandparents' mental health partially mediates the relationship between material hardship and parenting stress. This finding is consistent with the findings of Heflin and Iceland (2009), that reduction of material hardship is associated with reduced mental health distress among families experiencing poverty. It is also consistent with previous studies that found that grandparent caregivers were likely to experience higher rates of depression, if they had higher levels of unmet resource needs (Letiecq et al., 2008). Our findings indicate that grandparents' mental health distress is associated with increased parenting stress, which is also consistent with other studies (Kelley et al., 2000; Lee et al., 2016). These results also confirmed relationships illustrated in the family economic stress model (Conger & Elder, 1994), in which a family experiences material hardship, which has negative effects on caregivers' mental health, and further influences their parenting practices.

Several significant control variables were found to be significantly associated with parenting stress of the grandparent kinship providers in this study. Grandparents taking care of grandchildren due to parental substance abuse were more likely to report parenting stress compared with those that took care of grandchildren due to child abuse and neglect. This finding is consistent with O'Leary and Butler's (2015) study, which found that grandparents who care for grandchildren because of parental substance use experience profound distress that is not alleviated by social service responses. It is possible that those grandparents that take on the raising of their grandchildren due to child abuse/neglect receive more support, services, and resources from child protective services than grandparents that take on the care of their grandchildren due to parental substance abuse. It could be that these tangible and intangible supports help decrease caregivers' parenting stress (Sharda et al., 2019). It might be that for grandparents whose trigger event is parental substance abuse, more social services may be provided directly to the biological parents rather than the children (Renk et al., 2016). In cases like this, grandparents might feel more stressed when raising grandchildren, if they are not getting adequate social services. Furthermore, grandparents may have to deal with intergenerational relationships and manage their child's substance abuse issues while taking care of their grandchildren (Lent & Otto, 2018).

Surprisingly, caregivers' better physical health predicts a higher likelihood of reporting parenting stress among grandparent kinship caregivers, which is contradictory to previous findings (e.g., Lee et al., 2016). One potential explanation is that caregivers with better physical health might be more sensitive to feeling increased parenting stress, particularly during these uncertain times. This was also indicated in our bivariate comparisons showing that grandparent kinship providers that reported parenting stress had significantly better physical health conditions than their counterparts.

Another significant predictor of grandparent parenting stress is child mental health. This finding suggests that if a grandchild has better mental health, grandparents would be less stressed than those that have a child with worse mental health, which is consistent with previous studies (Gerard et al., 2006; Lee et al., 2016). When children have mental health problems, grandparents need to spend more time and energy taking children to obtain services that address the children's mental health needs. They may also need more

financial supports to pay for mental health services. During the COVID-19 pandemic, with grandparents and children sheltering in place at home, it might be challenging for them to access mental health services. Even if grandparents have access to and are able to pay for services, they may be reluctant to use in-person services due to concerns about contracting the virus. Even if there are telemental health services available, many grandparents and children may have no access to them (Golberstein, Wen, & Miller, 2020). Therefore, the COVID-19 pandemic may have escalated child mental health problems and grandparents' parenting stress.

Results of Model 1 showed that licensed kinship caregivers were more likely to indicate parenting stress than unlicensed kinship providers. Licensed and unlicensed kinship providers are different in their levels of involvement in the child welfare system (The U.S. Department of Health & Human Services, 2004). A potential explanation is that the public child welfare system mostly serves licensed kinship caregivers that are of lower socioeconomic status and less educated (Swann & Sylvester, 2006), and with children that have more behavior problems (Starr, Dubowitz, Harrington, & Feigelman, 1999). Such disadvantages add an extra layer of stress to licensed grandparent kinship caregivers. Unexpected child care needs and child problems, along with overwhelming licensure requirements might make them more stressed.

4.2. Limitations and strengths

Several limitations in this study should be noted. First, a convenience sampling was used to collect data on grandparent kinship providers. This limitation may not be overcome because there is no representative sampling frame for grandparent kinship providers, as previous studies also used a convenience sampling method (Lee et al., 2016). Previous studies (e.g., Xu, Bright, Barth et al., 2020) based on the second National Survey of Child and Adolescent Well-Being (NSCAW II), a nationally representative study, found that kinship caregivers' average age was 50 years old, 91.76 % were female, about half were married, and 32 % had high school or more education, 43.5 % were employed, and 52 % lived below the federal poverty line. Because of the nature of a convenience sample and an online survey, selection bias may exist, which may lead to a skewed sample. For example, grandparents who had higher income and were better educated were more likely to participate in this study because it relied on online data collection. Therefore, results of this study are not generalizable to all grandparent kinship providers. Second, this study used self-report data from grandparent kinship providers. Given that these participants might have been influenced by social desirability in their responses, results should be interpreted with caution. Third, this study used cross-sectional data, and therefore, it is not possible to make causal inferences about the relationship between material hardship and parenting stress. We were able to examine only the association between these two variables, rather than the effects of material hardship on parenting stress. Also, this study was limited by having no data on this population before COVID-19. Thus, we could not conclude whether these difficulties were exacerbated by COVID-19. Fourth, we used MHI-5 to document caregivers' immediate psychological well-being since the onset of COVID-19. However, the MHI-5 had relatively low reliability in this study, although this scale usually has a Cronbach alpha greater than 0.8 indicating good reliability (e.g., Cuijpers et al., 2009). Lastly, although we adapted the Abidin's (1995) Parent Stress Inventory by changing "parents" to "grandparents" and "child" to "grandchildren," this adaptation did not capture the unique parenting experiences that grandparents had during COVID-19 compared to that of parents. Prior studies indicated that grandparents and biological parents had no significant differences in their attitudes towards parenting (Kaminski, Hayslip, Wilson, & Casto, 2008). However, there are unique challenges for being grandparent kinship caregivers, including modifying their daily routines, their social life and their plans for the future (Crowther, Huang, & Allen, 2015). Thus, being primary caregivers in late adulthood makes grandparents experience more parental stress and psychological distress compared to young parents (Kelley et al., 2000). In terms of material hardship, Baker and Mutchler (2010) identified children living in grandparent-headed households experiencing material hardship, particularly health hardship, compared to children in two-parent households when controlling for household income. Although grandparent-headed families share similarities with parent-headed families at a similar low-income level, this study did not capture some unique factors, such as dealing with intergenerational relationships and biological parents' issues, in understanding relationships between material hardship, mental health, and parenting stress among grandparent kinship caregivers.

Although this study has certain limitations, it is worth noting several strengths. First, this study employed Qualtrics Panels survey to recruit both licensed and unlicensed grandparent kinship care providers, which significantly contributes to our understanding of those unlicensed caregivers (i.e., informal kinship caregivers) who are not involved in any public systems. In addition, the COVID-19 pandemic has influenced all aspects of individuals' lives, particularly worsening life hardships on those that are already vulnerable, such as grandparent kinship providers. This study helps us have a better understanding of their lives and their parenting stress during this particular period, which contributes in a timely way to the literature related to kinship care and the COVID-19 pandemic.

4.3. Implications for policy and practice

This study contributes to the literature by examining the relationships between material hardship, mental health, and parenting stress among grandparent kinship providers during the COVID-19 pandemic. It has significant implications for child welfare policy and practice. With the passage of the *Family First Prevention Services Act* (P. L. 115–123) and *Supporting Grandparents Raising Grandchildren Act* (P. L. 115–196) in 2018, federal policies emphasized reforms of the child welfare system to support children, parents, and kin caregivers (National Conference of State Legislatures, 2019; The United States Senate Special Committee on Aging, 2018). This direction is especially critical and meaningful during the COVID-19 pandemic. Many grandparent kinship providers have experienced material hardship and its associated parenting stress during the pandemic, which may further affect child safety and well-being. Herd et al. (2020) have stated an increased risk of child maltreatment in the context of COVID-19, and parenting stress and parental psychological distress may be potential mediating factors between material hardship and child maltreatment (Yang, 2015). Thus, more

efforts should be made to provide more material supports to grandparent kinship providers so that they can adequately meet family needs during and after the pandemic. The U.S. government has taken several steps to provide financial supports to individuals, such as offering compensation and medical benefits to federal employees, and more broadly providing a \$1,200 COVID-19 stimulus check (Pomerleau, 2020). However, these steps may not meet material needs of grandparent kinship providers. Additional policy decisions should be made while taking into consideration the special condition of grandparent kinship providers. During the pandemic, local social services agencies have distributed Temporary Assistance for Needy Families (TANF) and Supplemental Nutrition Assistance Program (SNAP) to many needy families (Bhutta, Blair, Dettling, & Moore, 2020), but policymakers should track whether these TANF and SNAP have been sent to these needy grandparent kinship providers, and whether the amount of financial support would be sufficient to combat material hardship in the face of an economic crisis and a global pandemic.

Results of this study also point to some potential evidence-based intervention programs for kinship providers in the face of the current disaster and in the long run. In addition to general parenting programs, more programs should be developed to uniquely address grandparents' mental health problems, because of the significant mediating role of grandparents' mental health between material hardship and parenting stress. In addition, child mental health should be another focus when developing evidence-based programs for children in kinship care. Grandparents may have concerns when seeking mental health services for themselves or children due to the coronavirus. Thus, educational programs regarding knowledge about the coronavirus and protection from the coronavirus should be provided. More service navigation programs should also be offered, which can help grandparent kinship providers access mental health services in a timely manner. On the other hand, more creative and diverse service delivery methods, such as telemental health or online/telephone support groups, should be provided to address grandparents' parenting stress and psychological distress (Golberstein et al., 2020; Smith et al., 2020).

4.4. Implications for research

In terms of future studies, researchers could focus more specifically on different types (e.g., food insecurity, housing instability) of material hardship, which can help to deepen our understanding of the impact of material hardship on parenting stress. In addition to the mediating role of mental health, future studies could examine other possible mediators, such as resilience and social support, in material hardship and parenting stress relationships. Furthermore, future studies could follow these grandparents longitudinally to examine the long-term effects of COVID-19 on the well-being of grandparent kinship providers and their children. In addition to studying grandparents, another area is to examine how the well-being of grandparents influences their grandchildren's outcomes. Qualitative method and mixed-methods research designs could be applied in future studies. Also, more research is needed to examine and compare parenting stress among different types of kinship care. Lastly, as material hardship, parenting stress, and mental illness are risk factors for child abuse and neglect, future research could examine how these risk factors are associated with child maltreatment in kinship care during the pandemic. Future research in understanding grandparenting stress also needs to consider more unique factors (e.g., intergenerational relationships) that grandparent kinship caregivers may have experienced.

4.5. Conclusion

This study advances our knowledge of material hardship, mental health, and parenting stress among grandparent kinship providers in the context of COVID-19. The results have implications for implementing interventions to meet material needs, improve psychological well-being, and decrease parenting stress among grandparent kinship providers in the face of COVID-19 and other disasters.

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