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The Negative Effects of Adverse Childhood Experiences (ACEs) on Behavioral Problems of Children
in Kinship Care: The Protective Role of Kinship Caregivers' Mental Health

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The Negative Effects of Adverse Childhood Experiences (ACEs) on Behavioral Problems of Children in Kinship Care: The Protective Role of Kinship Caregivers' Mental Health

Abstract

This study aims to examine the (1) prevalence of ACEs among children in kinship care; (2) relationships between the number and type of ACEs and children's internalizing and externalizing problems; and (3) the moderating role of kinship caregivers' mental health on the relationships between ACEs and children's internalizing and externalizing problems. A sample of children in kinship care ($N = 224$) obtained from the National Survey of Child and Adolescent Well-being II was used. Ordinary Least Squares regression models were conducted. Results indicated that neglect followed by parental substance abuse were found to be the most prevalent ACEs. Child neglect, sexual and emotional abuse, and parental substance abuse were significantly associated with child internalizing problems, while sexual and emotional abuse were significantly associated with child externalizing problems. The total number of ACEs and experiencing ≥ 3 ACEs were significantly associated with child externalizing problems. Kinship caregivers' mental health significantly moderated the relationships between neglect, sexual abuse, and child internalizing problems. Caregiver's mental health also moderated the relationships between emotional and sexual abuse and neglect and children's externalizing problems. Findings suggest the importance of addressing ACEs and the need for mental health services to both kinship caregivers and children in kinship care.

Keywords: Adverse childhood experiences; kinship care; caregivers' mental health; internalizing problems; externalizing problems

The Negative Effects of Adverse Childhood Experiences (ACEs) on Behavioral Problems of Children in Kinship Care: The Protective Role of Kinship Caregivers' Mental Health

In 2019, 32% of children in out-of-home care were placed in kinship care (U.S. Department of Health and Human Services, Administration for Children and Families, 2020). Since the implementation of the Federal Family First Prevention Services Act (2018), child welfare agencies have prioritized placing children in kinship care and continued providing services to support kinship families. Prior research shows that children in kinship care not only experience child maltreatment, but also have exposure to household dysfunctions, including parental substance abuse (Davis et al., 2020; Lee et al., 2020). The majority of previous research has primarily focused on maltreatment that kinship children suffer, often overlooking the complex trauma, including household dysfunctions, that kinship children experience (Winokur et al., 2014). Therefore, expanding the lens from child maltreatment to include the full spectrum of adverse childhood experiences (ACEs) is needed to better understand children in kinship care's behavioral problems. Unpacking the effects of ACEs on children's behavioral problems might also provide preliminary evidence for implementing trauma-informed care across settings serving kinship families (Miller et al., 2019).

ACEs were first examined by the Kaiser Permanente's Health Appraisal Clinic, in collaboration with the Centers for Disease Control and Prevention between 1995 and 1997 (Felitti et al., 1998; Ports et al., 2020). The CDC-Kaiser Permanente ACEs study included childhood maltreatment (e.g., physical, sexual, and emotional abuse, neglect) and household dysfunctions (e.g., parental violence, household mental illness, substance use, parental separation or divorce, incarcerated household member; Dube et al., 2001). The CDC indicates that more than 20% of adults in the U.S. experienced three or more ACEs (National Center for Injury Prevention and Control, Division of Violence Prevention, n.d.). The prevalence of ACEs is even higher for children involved in the child welfare system (CWS) than those general populations. For example, a nationally representative study

of children involved in CWS found that 42% of children experienced four or more ACEs, 27.08% experienced three ACEs, 17.23% experienced two ACEs, and 8.42% experienced only one ACE (Clarkson Freeman, 2014). For children involved in kinship care, Lee et al. (2020) found that 28% of them experienced neglect, 26% parental substance abuse, and 11% physical abuse. As kinship children enter care for reasons not limited to child maltreatment, but also household dysfunctions, it is imperative that the full effects of ACEs on children in kinship care be examined.

The Relationships between ACEs and Children's Internalizing and Externalizing Problems

Internalizing and externalizing problems are widely used to capture children's behavioral health outcomes (Achenbach, 1991). Internalizing problems refer to symptoms of depression, anxiety, and withdrawal, while externalizing problems are children's aggressive and rule breaking behaviors (Achenbach, 1991). Experiencing ACEs has been found to have deleterious effects on children's behavioral health outcomes. A vast majority of studies have examined both the cumulative and individual effects of ACEs on internalizing and externalizing problems among children. Regarding cumulative effects of ACEs, Petruccelli et al.'s (2019) systematic review suggests that an increased ACE score was associated with more behavioral problems among children. Specifically, one ACE was found to be associated with 1.45 times greater odds of having behavioral problems, while exposure to two, three, and four or more childhood adversities were associated with a 2.51, 2.52, and 4.88 odds, respectively.

Regarding the individual effects of ACEs on children's behavioral problems, results are inconsistent, depending on the study population. Hunt et al. (2017) found that exposure to emotional abuse and neglect, parental substance abuse, mental health, and domestic violence were significantly associated with increased internalizing and externalizing problems among high-risk children at age 9, while exposure to physical abuse and parental incarceration were only associated with externalizing problems. Conversely, Negriff (2020) found that sexual and physical abuse and emotional

maltreatment were associated with internalizing and externalizing behaviors among adolescents, respectively, while neglect was associated with internalizing problems only; however, a significant relationship was not found between household dysfunctions and children's behavioral problems.

Despite these findings, research examining the effects of ACEs on behavioral problems among children involved in the CWS also have different findings. For example, Clarkson Freeman (2014) found that experiencing three or more ACEs compared to zero ACE was only associated with increased internalizing problems, while experiencing four or more ACEs in comparison to those without ACEs was only associated with increased externalizing problems. Differently, Garcia et al.'s (2017) study indicated that the total number of ACEs was not associated with children's internalizing or externalizing problems, and that only child sexual and physical abuse were significant predictors of children's internalizing, but not externalizing problems. Furthermore, a recent study among kinship care families found that the average number of ACEs kinship children experienced was three, and that a higher total ACE score, ranging from zero to nine, was associated with increased kinship children's internalizing and externalizing problems (Spratt et al., 2018). Overall, studies have consistently shown that ACEs have negative effects on children's internalizing and externalizing problems, but the cumulative and individual effects of ACEs on children's internalizing and externalizing problems vary across populations. These mixed findings highlight the importance of building evidence to better understand the effects of ACEs on specific populations, including children in kinship care.

Furthermore, while research has consistently highlighted the negative effects of ACEs on children's behavioral problems, the availability of stable, protective, supportive, and responsive caregiving relationships can help children to develop adaptive coping mechanisms that promote well-regulated stress response system and ultimately buffers the effects of exposure to ACEs and subsequent behavioral problems (Shonkoff et al., 2012).

Kinship Caregivers' Mental Health and Its Buffering Effects on Child Behavioral Health

As primary caregivers for children in kinship care, kinship caregivers' mental health is critical for healthy child development (Garcia et al., 2015; Kelley et al., 2011). There is abundant literature that has examined caregivers' poor mental health (e.g., depression, anxiety) and its negative influences on child development (Phua et al., 2020). However, studies on the buffering effects of caregivers' positive mental well-being, particularly kinship caregivers' mental well-being, on child behavioral health are limited. Evidence suggests kinship caregivers' mental health is associated with their parenting practices and their relationships with children (Author et al., 2020b). More specifically, caregivers with positive mental health are more likely to experience less parenting stress, engage in shared activities with children, be responsive to children's needs, and regulate their family's and children's emotions (Maughan et al., 2007; Richter et al., 2018). On the other hand, caregivers with poor mental health are less likely to be positive, sensitive, and attentive to children's needs and may pose a significant threat to children's emotional regulation and stress coping, which may further affect children's behavioral health outcomes (Maughan et al., 2007).

Although caregivers' mental health is critical for the well-being of children, Rodriguez-JenKins et al. (2020) suggested that kinship caregivers' mental health needs were one of the most unmet they experienced. The unmet mental health needs exacerbated associations between kinship caregivers' worse mental health and increased parenting stress and risky parenting behaviors (Author et al., 2020a; Author et al., 2020b). Furthermore, kinship caregivers' worse mental well-being increases children's behavioral problems. For example, Kelley et al. (2011) suggested that kinship caregivers' psychological distress was linked to increased children's behavioral problems in kinship care. Additionally, Garcia et al. (2015) indicated a significant relationship between kinship caregivers' depression status and children's behavioral problems. More specifically, children with kinship caregivers who were never depressed or had improved depression conditions over time, had significantly fewer behavioral problems over time.

In conclusion, for children entering kinship care with ACEs history, having supportive caregiving relationships plays a significant role in helping children cope with adversity and remaining positive outlooks after experiencing adversity (Shapiro & Applegate, 2018). Kinship caregivers' good mental health is one of prerequisites for supportive caregiving relationships, which may buffer the negative effects of adverse events on child behavioral problems, such as children's internalizing and externalizing behaviors.

Guiding Theories: The Toxic Stress Theory and Family Resilience Theory

This study is guided by the toxic stress theory (Center on the Developing Child, 2021) and the family resilience theory (Walsh, 2013). Toxic stress refers to any prolonged activation of stress and subsequent response to stress hormone — allostatic load — in the absence of protective relationships and factors (McEwen, 2007; Shern et al., 2016). The toxic stress theory posits that exposure to frequent and prolonged adversity in childhood may result in changes to the developing brain and other systems, resulting in increased risk for adverse behavioral outcomes (Danese & McEwen, 2012; Wegman & Stetler, 2009). Specifically, the more adversity a child experiences, the greater the likelihood of behavioral problems, including internalizing and externalizing problems.

In the face of adversity, family resilience theory further delineates factors that buffer the negative effects of ACEs on children's behavioral problems. Family resilience refers to the family's capacity to bounce back from stressful life challenges and become more strengthened and resourceful (Walsh, 2013). Studies have shown a myriad of factors that contributes to resilience among children, including caregivers' nurturing and protective care, family emotional regulation, and positive views of family (Masten, 2018). Additionally, the availability of supportive and responsive relationships early in a child's life has been shown to increase resilience among children with exposure to adversity (Berens et al., 2017). Caregivers' healthy mental well-being is a prerequisite for supportive and responsive caregiving and nurturing relationships, which may further help children in kinship care to

better regulate their emotions and behaviors, keep positive views in the face of adversity, and develop adaptive coping skills in dealing with the effects of toxic stress on behavioral outcomes.

As exposure to toxic stress results in a range of deleterious outcomes across the life course, these theories provide an explanation for the role of ACEs on kinship children's internalizing and externalizing problems, and the importance of resilient kinship caregivers, particularly caregivers with good mental health, as a protective factor in buffering the effects of toxic stress.

Current Study

To our knowledge, this is the first study to examine the effects of ACEs on children's behavioral problems in kinship care and to investigate the moderating role of kinship caregivers' mental health on this relationship. Results of this study will provide recommendations for the implementation of trauma-informed care in serving kinship families and for providing mental and behavioral health services to kinship caregivers and children in kinship care. Therefore, this study aims to examine the (1) prevalence of ACEs among children in kinship care; (2) relationships between the number and type of ACEs and children's internalizing and externalizing problems; and (3) moderating role of kinship caregivers' mental health on the relationship between ACEs and children's internalizing and externalizing problems.

Method

Data and Sample Selection

Data from wave 1 of the National Survey of Child and Adolescent Well-being II (NSCAW II) were used in this study. NSCAW II is a nationally representative, longitudinal study designed to understand the well-being of children with CWS involvement, including those in kinship care (Dowd et al., 2014). Using a two-stage stratified sampling design, NSCAW II sampled 5,872 children aged birth to 17.5 years in the U.S. who were investigated by Child Protective Services (CPS) between February 2008 and April 2009 (Dowd et al., 2014).

The current study included a sample of children who stayed in kinship care at wave 1. There were frequent placement changes among kinship children and the change of kinship caregivers over time in NSCAW II study (Xu et al., 2021). To tease out the influence of placement changes and change of caregivers on children's behavioral problems, we decided to use cross-sectional data to ensure that the sample included only those children who stayed in kinship care with the same caregiver during the study period. A total of 540 kinship children (≥ 1.5 years old) were selected in NSCAW II wave 1 data as the measure for the dependent variables was only available for children between 1.5 and 18 years old. After eliminating missing data, 224 children in kinship care were selected as the study analytic sample. This research study received a determination of not human subject research by the first author's University Institutional Review Board.

Measures

Dependent Variables

Children's internalizing and externalizing problems were measured using the Child Behavior Checklist (CBCL; Achenbach & Rescorla, 2000). Kinship caregivers reported the frequency of their kinship children's internalizing and externalizing problems using a three-point scale (1 = *not sure*, 2 = *somewhat or sometimes true*, and 3 = *very true or often true*). Standardized t-scores with normal distributions were used to accommodate two versions of the CBCL for children with different ages (1.5 – 5 years and 6 – 18 years), with higher scores indicating more behavioral problems. The CBCL is a reliable and valid measure with Cronbach's α ranging from 0.78 to 0.97 across studies (Achenbach, 1991; Achenbach & Rescorla, 2000).

Independent Variables

ACEs were measured using caseworkers' reports of four child maltreatment indicators: physical, sexual, and emotional abuse, and neglect (including physical neglect, lack of supervisory, abandonment); and four household dysfunction indicators (parental substance abuse, mental illness,

domestic violence, and incarceration; Felitti et al., 1998) with responses of “yes” or “no”. More specifically, child physical, sexual and emotional abuse, and neglect were assessed by caseworkers during in-takes. Caseworkers also assessed household dysfunctions which included whether children’s biological parents had (1) drug and alcohol abuse problems, (2) serious mental health problems and cognitive impairments, (3) domestic violence, and (4) a history of being arrested. We used individual ACEs items, a cumulative ACEs score (i.e., the sum of all ACEs), and ACEs scores with cutoff points (i.e., 0-1, 2, 3, ≥ 4) in data analyses, respectively. This approach of using cumulative scores and cutoff points is similar to previous studies (e.g., Hunt et al., 2017). For the cutoff points, we combined zero and one ACE as a category because only five children had no ACE, which would be too small to be used as a reference group in the analyses and in detecting meaningful significance. As an additional measure, we compared the results of our analyses with and without these five cases and statistically significant results remained.

Moderator

Kinship caregivers’ mental health was measured using the Short Form Health Survey (SF-12) (Ware et al., 1996). Scores were computed by NSCAW II survey developers and ranged from 1 to 100, with higher scores indicating better mental health. The reliability (generally above 8.0) and validity of this scale are well documented (Ware et al., 1996).

Control variables

Children and caregiver demographic characteristics were controlled for in the analyses. At the child level, race/ethnicity (0 = *non-Hispanic White*, 1 = *non-Hispanic Black*, 2 = *Hispanic*, 3 = *other*), gender (1 = *female* and 0 = *male*), child age, and child health (1 = *poor* and 5 = *excellent*) were included as controls. Caregivers’ age (1 = *35-54 years* and 0 = *>54 years*), race/ethnicity (0 = *White and non-Hispanic*, 1 = *Black and non-Hispanic*, 2 = *Hispanic*, 3 = *other*), education (1 = *college or above* and 0 = *high school or below*), gender (1 = *female* and 0 = *male*), and poverty (1 = *below poverty* and 0 =

above poverty) were treated as categorical variables and included as controls. Caregivers' physical health was measured using the SF-12 (Ware et al., 1996) and treated as a continuous variable in analyses. Higher scores are indicative of better physical health.

Missing Data

Variables with missing data included substance abuse (34.63%); incarceration (26.67%); domestic violence (26.30%); mental illness (25.19%); caregiver's age (14.44%), race/ethnicity (14.26%), education (14.63%), gender (14.07%), and mental and physical health (13.52%); child health (13.33%); and family poverty (7.41%). Because of complex weights in NSCAW II data, integrating sampling weights into multiple imputation may yield inaccurate estimates (National Data Archive on Child Abuse and Neglect, Personal communication, March 2019). In addition, it would not be theoretically reasonable to impute child adversities and family demographics. Thus, a complete case analysis was considered the best approach to handle missing data in this case. Excluding participants with missing data, the sample included a total of 224 kinship children. To examine the potential effects of missing data on results, we conducted bivariate analyses to examine differences between the analytic sample without missing data and the original sample with missing data.

Bivariate analyses, *t*-tests and chi-square tests, revealed statistically significant differences between the two samples in relation to children's internalizing ($F = 6.03, p = 0.017$; original sample: $M = 53.71, SD = 11.74$; current sample: $M = 50.67, SD = 11.67$) and externalizing problems ($F = 5.34, p = 0.024$; original sample: $M = 53.07, SD = 12.15$; current sample: $M = 50.36, SD = 11.65$); parental substance abuse ($\chi^2 = 43.29, p = 0.0001$; original sample: 49.73% had substance abuse history; current sample: 34.14% had substance abuse history); mental illness ($\chi^2 = 15.04, p = 0.0084$; original sample: 21.6% had mental illness; current sample: 11.92% had mental illness); and child gender ($\chi^2 = 57.02, p = 0.0002$; original sample: 47.57% female; current sample: 67.79% female). The statistical differences highlighted the fact that our current sample consisted of children with fewer internalizing and

externalizing problems, less substance abuse and mental illness ACEs history, and more girls. Therefore, the findings of this study should be interpreted in light of these differences.

Data Analysis

All analyses were performed using STATA 15.0. Descriptive analyses and ordinary least squares (OLS) regression models with sampling weights applied were conducted. OLS regression assumptions, including no problematic multicollinearity (an average variance inflation factor 1.64), normality, homogeneity of variance, and independence of residuals were tested, and no assumptions were violated. To further examine the moderating role of kinship caregivers' mental health on the relationship between ACEs and children's internalizing and externalizing problems, interaction terms between ACEs and kinship caregivers' mental health were included in the regression models. Because our study had between 12 to 20 predictors, based on analyses, we conducted power estimations using G*Power (Buchner, Erdfelder, & Faul, 1996). Our post hoc power estimations indicated that this study was adequately powered (>0.90) to detect medium effect sizes (0.15) with an alpha error probability of 0.05. Specifically, the power estimations were 0.98 (12 predictors), 0.98 (14 predictors), 0.96 (19 predictors), and 0.95 (20 predictors), respectively.

Results

Descriptive Results

Table 1 provides the weighted descriptive statistics for the sample ($N=224$) of children in kinship care. Children had a mean age of 8.04 ($SD = 4.79$) years, mostly female (67.8%) and non-Hispanic White (44.6%), with a physical health mean score of 4.15 ($SD = 0.83$).

The average scores for children's internalizing and externalizing behavioral problems were 50.67 ($SD = 11.67$) and 50.36 ($SD = 11.65$), respectively. Children had an average ACEs score of 1.61 ($SD = 1.08$). More specifically, 62.5% of children experienced none or only one ACE ($n = 75$; including 0 ACE: $n = 5$; and 1 ACE: $n = 70$), 19.3% experienced 2 ACEs, about 18.3% experienced 3

and ≥ 4 ACEs (range 0-5), respectively. The most common ACEs experienced by children were neglect (36.7%), parental substance abuse (34.1%), domestic violence (24.2%), and incarceration (19.5%).

In terms of caregiver's demographic characteristics, 73.6% were aged 35-54 and most identified as females (88.2%). More than two thirds of caregivers (65.1%) had a college-level education and above, and more than one half identified as non-Hispanic White (56.2%) and were living above the poverty line (54.8%). The average scores for caregiver's mental and physical health were 52.54 ($SD = 8.63$) and 44.20 ($SD = 12.30$), respectively.

[INSERT TABLE 1 ABOUT HERE]

Results of Regression Models

ACEs and Internalizing and Externalizing Problems

Table 2 presents six OLS regression models predicting child internalizing and externalizing behavioral problems, respectively. Models 1 and 2 show the relationships between individual ACEs items and children's behavioral problems. Results indicated that sexual and emotional abuse were significantly associated with increased internalizing ($B = 9.20, p = 0.002$; $B = 7.92, p = 0.011$, respectively) and externalizing behavioral problems ($B = 16.27, p = 0.016$; $B = 12.53, p = 0.010$, respectively). Regarding the cumulative effect of ACEs on children's behavioral problems, the total number of ACEs was only associated with increased externalizing problems ($B = 2.41, p = 0.033$). Experiencing three ($B = 6.59, p = 0.006$) or four or more ACEs ($B = 9.36, p = 0.031$) was associated with increased externalizing problems compared to experiencing no or one ACE.

Significant Child Characteristics Associated with Internalizing and Externalizing Problems

The significant child characteristics associated with child internalizing and externalizing problems are also presented in Table 2. When compared to White children, being Hispanic was associated with more internalizing problems (Model 1: $B = 5.20, p = 0.024$; Model 3: $B = 4.81, p =$

0.021). Children of other race/ethnicities (i.e., Asian Pacific Islanders, Native Americans) experienced more externalizing problems compared to their White counterparts (Model 2: $B = 10.17$, $p = 0.019$; Model 4: $B = 7.55$, $p = 0.048$). Also, child age and gender were significant predictors of externalizing problems. Being older was associated with more externalizing problems compared to being younger (Model 2: $B = 0.68$, $p = 0.003$; Model 4: $B = 0.64$, $p = 0.007$). Also, females had fewer externalizing problems when compared to boys (Model 2: $B = -3.90$, $p = 0.048$).

Significant Kinship Caregiver Characteristics Associated with Internalizing and Externalizing Problems

Kinship caregivers' mental health was a significant predictor of children's internalizing and externalizing problems across all models (see Table 2). Results indicate that children whose caregivers had better mental health conditions showed fewer internalizing and externalizing problems (Model 1: $B = -0.50$, $p = 0.001$; Model 2: $B = -0.48$, $p = 0.002$; Model 3: $B = -0.37$, $p = 0.012$; Model 4: $B = -0.38$, $p = 0.011$; Model 5: $B = -0.37$, $p = 0.009$; Model 6: $B = -0.37$, $p = 0.011$). Moreover, children raised by female caregivers had fewer internalizing problems than those raised by male caregivers (Model 1: $B = -7.70$, $p = 0.015$; Model 3: $B = -8.38$, $p = 0.023$; Model 5: $B = -7.83$, $p = 0.040$). In Models 1, 3, and 5, children whose caregivers identified as other race/ethnicity (i.e., Asian Pacific Islanders, Native Americans) showed more internalizing problems (Model 1: $B = 9.03$, $p = 0.005$; Model 3: $B = 8.73$, $p = 0.014$; Model 5: $B = 9.73$, $p = 0.008$) and externalizing problems (Model 6: $B = 5.55$, $p = 0.048$) than children whose caregivers were White.

[INSERT TABLE 2 ABOUT HERE]

Interactions between ACEs and Kinship Caregivers' Mental Health

We further examined the interactions between individual and cumulative ACEs and kinship caregivers' mental health on children's internalizing and externalizing problems. Table 3 presents only the significant interactions. Kinship caregivers' mental health significantly moderated the relationship

between neglect and child externalizing problems ($B = 4.44, p < 0.05$; see Model 1 and Figure 1). Significant interactions were also found between sexual and emotional abuse and kinship caregivers' mental health on children's behavioral problems. Kinship caregivers' mental health significantly moderated the relationship between child sexual abuse and children's internalizing ($B = -0.80, p = 0.001$; see Model 2 and Figure 2a) and externalizing ($B = -0.66, p < 0.01$; see Model 3 and Figure 2b) problems. That is, caregivers' better mental health buffered the effects of sexual abuse on children's internalizing and externalizing problems. Kinship caregivers' mental health also significantly moderated the relationship between emotional abuse and children's behavioral problems (see Models 4 and 5; Figures 3a and 3b). Specifically, better mental health of kinship caregivers was associated with children's decreased internalizing ($B = -2.30, p < 0.05$) and externalizing ($B = -1.79, p < 0.01$) problems if emotional abuse was experienced.

[INSERT TABLE 3 & FIGURES 1-3 ABOUT HERE]

Discussion

A substantial body of research has examined ACEs and children's behavioral problems, yet there is a paucity of studies that have examined both these relationships, as well as protective factors, among children in kinship care. Using data from a nationally representative study, we examined the relationships between ACEs and kinship children's internalizing and externalizing problems and further tested the moderating role of kinship caregivers' mental health on these relationships. Results of this study particularly highlight the protective role of kinship caregivers' mental health on the relationships between ACEs and kinship children's behavioral health outcomes.

The Prevalence of ACEs

Due to the recent opioid crisis, a disproportionate number of children have entered kinship care with co-occurring child maltreatment and household dysfunctions (Davis et al., 2020). Our results provide additional support for this phenomenon, given a large proportion of children in kinship care in

our study sample experience both child maltreatment (e.g., neglect: 36.66%) and household dysfunction (e.g., parental substance abuse: 34.14%). Five children in this sample did not experience any ACEs in our study, which is in alignment with existing research that utilized the NSCAW dataset where 5.07% of children did not have an ACE (Clarkson Freeman, 2014). Similar findings were also identified in Spratt et al.'s (2018) study, where 10% of kinship children reported no ACEs. A potential explanation is that some children may enter kinship care due to parental death, parental economic needs, or military deployment (Ariyo et al., 2019), but these were not captured by our current ACEs measure.

ACEs and Children's Internalizing and Externalizing Problems

An interesting finding of our study indicated that both child sexual and emotional abuse experiences were significantly associated with children's internalizing and externalizing problems. This may be related to the etiology of emotional and sexual abuse. More specifically, children who experience emotional abuse may lack positive coping strategies and have more difficulty dealing with stressful situations, resulting in a higher risk of behavioral problems (Muniz et al., 2019). Similarly, children who experienced sexual abuse may internalize the psychological trauma and stigma associated with such abuse, which may trigger feelings of powerlessness, shame, and guilt, and further lead to internalizing problems (Gibson & Leitenberg, 2001).

Our results also indicated that child neglect and parental substance abuse were only associated with children's internalizing but not externalizing problems. Child neglect usually is associated with inadequate parental care, including failure to meet children's needs, which may lead to children's negative emotional responses (Bolger & Patterson, 2001; Kobulsky et al., 2020). Moreover, having more internalizing problems resulting from neglect may be due to the fact that experiencing neglect is related to a psychological experience. This may affect brain processes resulting in prolonged stress where such behaviors are internalized, according to toxic stress theory (Center on the Developing

Child, 2021). Furthermore, parental substance abuse was associated with increased children's internalizing problems. This may be due to the fact that parental substance abuse may affect their parenting behaviors, mental well-being, emotional regulation, and coping strategies. These may further influence children's emotional regulation, confidence, and social skills, which may result in increased children's internalizing problems (Osborne & Berger, 2009; Staton-Tindall et al., 2013). In addition, for kinship families with substance abusing biological parents, kinship caregivers need to address these problems with the biological parents (Rodriguez-JenKins et al., 2020), which may cause conflicts in family relationships and affect children's internalizing problems.

Our results further indicated that the total number of ACE score and having three or more ACEs were only significantly associated with children's externalizing and not internalizing problems. One plausible explanation for our finding is that children with more ACEs are more likely to express their emotions directly (e.g., physically, aggressively), thereby resulting in more externalizing problems.

The Protective Role of Kinship Caregivers' Mental Health

Our results indicated that kinship caregivers' mental health significantly buffered the negative effect of sexual and emotional abuse on both internalizing and externalizing problems. In addition, results suggest that kinship caregivers' mental health buffers the negative effects of neglect on children's externalizing problems. This finding highlights the protective role of kinship caregivers' mental health conditions on children's behavioral problems. Previous research has consistently indicated that kinship caregivers' mental health is strongly associated with children's behavioral health outcomes (Garcia et al., 2015; Kelley et al., 2011). Despite the impact of kinship caregiver's better mental health in reducing children's behavioral problems, kinship caregivers tend to underuse mental health services (Rodriguez-JenKins et al., 2020; Smithgall et al., 2009) due to family, structural and perceptual barriers (Sakai et al., 2011; Smithgall et al., 2009). For example, Smithgall et al. (2009)

found that 75% of grandparent kinship caregivers needed mental health services, but no mental health services were available to them. Being a kinship caregiver is mentally stressful and dealing with kinship children's trauma and behavioral problems adds another layer of mental distress on these individuals. Our results emphasize the importance of improving kinship caregivers' access to mental health services which in turn, stands to benefit not only kinship caregivers, but also improve kinship children's behavioral health outcomes.

Limitations and Future Directions

The current study has several limitations. First, this study is limited by its cross-sectional design. Due to the nature of placement changes and placement instability in kinship care, a cross-sectional design was used to answer our current research questions. However, this approach fails to track the long-term effects of ACEs on children's behavioral problems. Furthermore, we did not address whether the kinship care was their first placement in this study, nor did we control for their length of stay in kinship care. It is possible that the kinship children in our sample may represent those who have stayed longer in care. Second, children's behavioral problems were reported by kinship caregivers, which may have introduced bias. Third, we excluded a proportion of participants with missing data and results may not be generalizable to those kinship children and families. Fourth, this study only included kinship caregivers who were involved in the child welfare system, whereas the majority of kinship families informally take care of relatives' children (Lee et al., 2020). Thus, these results may not be generalizable to all informal kinship caregivers. Lastly, it is important to note that some other variables (e.g., kinship caregivers' parenting practice and stress, relationship quality between kinship caregivers and children) were not measured in the present study, which could also be significant predictors of children's internalizing and externalizing problems.

Future research should examine the longitudinal effects of ACEs on children's behavioral problems in kinship care, including informal kinship care. To have a comprehensive understanding of

ACEs on children's outcomes in kinship care, future research should expand the child well-being domain from behavioral problems to educational and physical health outcomes. To understand the pathways from ACEs to children's outcomes, future studies should also examine mechanisms between ACEs and children's behavioral problems. Given our current results on the buffering effects of kinship caregivers' mental health on the relationship between ACEs and children's behavioral health outcomes, we recommend that researchers continue exploring the role of kinship caregivers' mental health in promoting children's well-being. Also, further examination of how to improve kinship caregivers' mental well-being and factors that improve resilience of kinship families are also needed.

Implications for Practice

Results of this study provide significant implications for addressing ACEs among children in kinship care and providing mental health services to both kinship children and their caregivers in order to prevent the negative effects of ACEs on children's behavioral problems. To address ACEs among children in kinship care, it is critical that trauma-informed care be implemented across settings, such as schools, child welfare systems, local agencies on aging, and agencies serving kinship caregivers. Additional services should be provided to kinship children who experienced sexual and emotional abuse, neglect, and household substance abuse, and those who experience three or more ACEs. It is important that practitioners and agencies serving children and their caregivers implement ACE screening at intake. Implementation of these screening activities would provide caregivers' access to services needed to prevent or reverse the effects of ACEs and subsequent mental and behavioral outcomes across the life course. Of importance to note is the Federal Family First Act (2018), Kinship Navigator Programs that are implemented nationwide with the primary purpose of offering information, follow-up services, and link resources to kinship caregivers (Casey Family Program, 2018). When offering services to kinship families, it is important to address the complex trauma experienced by kinship children by incorporating trauma-informed care in Kinship Navigator

Programs and other services. Also, it is important to educate kinship navigators about the effects of childhood trauma on children's short- and long-term outcomes.

Our results also highlight the importance of mental health services for kinship caregivers, and the significant protective role of kinship caregivers' mental health in buffering the negative effects of ACEs on children's behavioral health outcomes. Kinship caregivers' mental health is one of the biggest challenges facing kinship caregivers (Rodriguez-JenKins et al., 2020). Barriers to mental health services include lack of information, transportation barriers, complex referral processes, stigma, and use of health insurance that is less likely to be accepted (Smithgall et al., 2009). The implementation of individual- and community-level trauma-informed interventions could also aid in increasing caregivers' self-care, overall health and mental health access, in addition to the promotion of a positive caregiver-child relationship (Author et al., under review). Furthermore, kinship service providers could refer kinship caregivers to mental health services and provide these services in numerous communities, especially in low income and large minority populations, by eliminating service barriers. In addition, African Americans are overrepresented in kinship care, many of whom seek religious services for mental health issues (Hankerson & Weissman, 2012). Providing access to mental health services at faith-based organizations might also increase service utilization among Black Americans (Hankerson & Weissman, 2012). Also, mental health service providers should use a family-centered lens by providing services to the entire family (i.e., kinship caregivers, children, and biological parents). Other services including respite care, parenting education addressing kinship children's trauma and behavioral problems, and dealing with family dynamics or relationships with children's biological parents might be useful in reducing kinship caregivers' mental distress (Rodriguez-JenKins et al., 2020; Sutphin, 2015).

In addition to treating kinship caregivers' mental health problems, it is important to provide resources that helps them to engage in and maintain good mental health in addition to increasing their

overall well-being, as our study indicates that better mental health acts as a protective factor in buffering the negative effects of ACEs on children's behavioral problems. Aligned with the family resilience theory, having good mental health may result in caregivers having a positive view of their lives, which in turn, will help regulate their children's stress in the face of adversity and prevent adverse effects on child development. At the practice level, promotion of individual and family resilience among kinship caregivers, children, and their families is also paramount. This can be done by identifying the family's strengths, maintaining positive thoughts, having open communication, using collaborative problem-solving skills, seeking instrumental and non-instrumental support and getting connected to resources in the community (Masten, 2018). Caregivers could increase their resilience by participating in support groups and other services specific to kinship caregivers (Sharda et al., 2019).

Conclusion

This study examined the relationships between ACEs and children's internalizing and externalizing problems and further identified the buffering effect of kinship caregivers' mental health in these relationships. The results of this study highlight the importance of implementing trauma-informed care across settings serving kinship families and the significance of providing mental health services to the entire kin family.

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Table 1. Weighted Descriptive Results for Study Sample (N=224).

Variable	<i>n</i>	Mean (SD)/%	Range
Internalizing problems	224	50.67 (11.67)	29-79
Externalizing problems	224	50.36 (1.52)	28-82
Physical abuse			
Yes	31	13.95%	
No	193	86.05%	
Neglect			
Yes	64	36.66%	
No	160	63.34%	
Sexual abuse			
Yes	28	14.85%	
No	196	85.15%	
Emotional abuse			
Yes	6	5.96%	
No	218	94.04%	
Domestic violence			
Yes	96	24.22%	
No	128	75.78%	
Substance abuse			
Yes	140	34.14%	
No	84	65.86%	
Mental illness			
Yes	73	11.92%	
No	151	88.08%	
Incarceration			
Yes	78	19.46%	
No	146	80.54%	
Total ACEs	224	1.61 (1.08)	0-5
Categorized ACEs			
≤ 1	75	62.51%	
2	54	19.25%	
3	52	9.06%	
≥ 4	43	9.19%	
Child's race			
Non-Hispanic White	85	44.64%	
Non-Hispanic Black	77	25.14%	
Hispanic	49	24.15%	
Other race	13	6.07%	
Child's gender			
Male	117	32.21%	
Female	107	67.79%	
Child's age	224	8.04 (4.79)	1.5-16
Child's health	224	4.15 (0.83)	2-5
Caregiver's age (ref. >54)			
35-54	164	73.62%	
>54	60	26.38%	
Caregiver's race			
Non-Hispanic White	106	56.20%	
Non-Hispanic Black	65	15.84%	
Hispanic	41	20.56%	
Other race	12	7.40%	
Caregiver's education			
High school or below	137	65.05%	
College and above	87	34.95%	

Caregiver's gender			
Male	24	11.77%	
Female	200	88.23%	
Poverty			
Below poverty	87	45.17%	
Above poverty	137	54.83%	
Caregiver's mental health	224	52.54 (8.63)	14.60-70.89
Caregiver's physical health	224	44.20 (12.30)	15.72-62.66

Note. ACEs = Adverse childhood experiences

Table 2. Six OLS Regression Models Predicting Child Internalizing and Externalizing Behavioral Problems (N=224)

Variable	Individual ACEs				Total ACEs				Categorized ACEs			
	Model 1: Internalizing		Model 2: Externalizing		Model 3: Internalizing		Model 4: Externalizing		Model 5: Internalizing		Model 6: Externalizing	
	B	p	B	p	B	p	B	p	B	p	B	p
Physical abuse	2.66	0.436	2.65	0.556	-	-	-	-	-	-	-	-
Neglect	4.59	0.020	3.89	0.132	-	-	-	-	-	-	-	-
Sexual abuse	9.20	0.002	7.92	0.011	-	-	-	-	-	-	-	-
Emotional abuse	16.27	0.016	12.53	0.010	-	-	-	-	-	-	-	-
Domestic violence	1.11	0.616	1.42	0.448	-	-	-	-	-	-	-	-
Substance abuse	4.59	0.042	3.92	0.054	-	-	-	-	-	-	-	-
Mental illness	-1.46	0.527	2.04	0.435	-	-	-	-	-	-	-	-
Incarceration	-0.03	0.921	0.36	0.906	-	-	-	-	-	-	-	-
Total ACEs	-	-	-	-	1.74	0.100	2.41	0.033	-	-	-	-
Categorized ACEs												
≤ 1	-	-	-	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-0.95	0.718	-1.78	0.439
3	-	-	-	-	-	-	-	-	3.60	0.189	6.59	0.006
≥ 4	-	-	-	-	-	-	-	-	6.03	0.115	9.36	0.031
Child's race (ref. non-Hispanic White)												
Non-Hispanic Black	-3.76	0.313	-1.86	0.644	-3.81	0.360	-1.90	0.647	-4.00	0.340	-2.12	0.594
Hispanic	5.20	0.024	2.73	0.277	4.81	0.021	2.25	0.440	4.23	0.064	0.93	0.795
Other race	6.29	0.097	10.17	0.019	2.55	0.472	7.55	0.048	2.03	0.567	6.64	0.074
Child's gender (ref. male)	-2.15	0.270	-3.90	0.048	-1.31	0.525	-3.32	0.079	-0.98	0.649	-2.61	0.178
Child's age	0.45	0.114	0.68	0.003	0.35	0.213	0.64	0.007	0.27	0.325	0.53	0.008
Child's health	-1.92	0.215	-2.11	0.104	-2.20	0.151	-2.33	0.084	-2.17	0.156	2.34	0.075
Caregiver's age (ref. >54)	-0.24	0.927	-1.70	0.490	-1.80	0.489	-3.04	0.206	-2.04	0.439	-3.56	0.139
Caregiver's race (ref. White and non-Hispanic)												
Non-Hispanic Black	4.25	0.293	2.49	0.586	2.63	0.553	1.26	0.791	2.43	0.566	0.59	0.895
Hispanic	-1.23	0.759	-0.01	0.998	-1.75	0.641	-0.17	0.967	-1.12	0.779	1.17	0.798
Other race	9.03	0.005	4.20	0.118	8.73	0.014	3.83	0.148	9.73	0.008	5.55	0.048
Caregiver's education (ref. ≤ high school)	2.32	0.288	0.38	0.848	3.19	0.250	0.92	0.681	3.63	0.170	1.61	0.449
Caregiver's gender (ref. male)	-7.70	0.015	-3.71	0.198	-8.38	0.023	-4.44	0.168	-7.83	0.040	-3.51	0.292
Poverty (ref. above poverty)	-1.47	0.518	-0.27	0.906	0.70	0.780	1.29	0.576	1.34	0.589	2.47	0.260
Caregiver's mental health	-0.50	0.001	-0.48	0.002	-0.37	0.012	-0.38	0.011	-0.37	0.009	-0.37	0.011
Caregiver's physical health	0.01	0.891	0.03	0.712	-0.02	0.834	0.01	0.934	-0.02	0.820	0.01	0.967

Note. OLS = ordinary least squares; ACEs. Adverse childhood experiences.

Table 3. Moderating Role of Mental Health of Kinship Caregivers (N=224).

Variable	Model 1: Externalizing ^a		Model 2: Internalizing ^b		Model 3: Externalizing ^b		Model 4: Internalizing ^c		Model 5: Externalizing ^c	
	B	p	B	p	B	p	B	p	B	p
Neglect × Caregiver's mental health	4.44	0.041	-	-	-	-	-	-	-	-
Sexual abuse × Caregiver's mental health	-	-	-0.80	0.001	-0.66	0.005	-	-	-	-
Emotional abuse × Caregiver's mental health	-	-	-	-	-	-	-2.30	0.044	-1.79	0.002
Physical abuse	2.20	0.625	3.00	0.351	2.93	0.503	2.61	0.432	2.61	0.556
Neglect	-19.84	0.091	4.26	0.022	3.62	0.162	4.33	0.029	3.69	0.164
Sexual abuse	7.73	0.010	51.80	<0.001	43.11	0.001	8.96	0.004	7.73	0.014
Emotional abuse	12.98	0.008	15.41	0.023	11.82	0.015	148.92	0.020	115.88	<0.001
Domestic violence	1.47	0.411	1.14	0.624	1.45	0.449	0.54	0.777	0.98	0.597
Substance abuse	3.64	0.061	4.95	0.029	4.22	0.038	3.64	0.103	3.18	0.121
Mental illness	2.02	0.453	-1.37	0.571	2.12	0.431	-2.62	0.255	1.14	0.654
Incarceration	0.16	0.959	0.30	0.918	0.85	0.779	0.057	0.849	1.03	0.748
Child's race (ref. White and non-Hispanic)										
Non-Hispanic Black	-1.26	0.747	-2.36	0.479	-0.70	0.850	-5.50	0.164	-3.22	0.430
Hispanic	3.64	0.166	4.70	0.019	2.31	0.375	4.74	0.043	2.37	0.330
Other	10.97	0.009	6.20	0.075	10.09	0.014	6.09	0.102	10.02	0.019
Child's gender (ref. male)	-4.31	0.023	-3.04	0.116	-4.64	0.013	-2.76	0.094	-4.37	0.025
Child's age	0.71	0.003	0.44	0.092	0.68	0.002	0.39	0.146	0.64	0.005
Child's health	-1.79	0.160	-1.94	0.175	-2.14	0.081	-2.25	0.150	-2.38	0.074
Caregiver's age (ref. >54)	-2.06	0.393	-0.38	0.878	-1.81	0.428	-0.14	0.956	-1.62	0.507
Caregiver's race (ref. non-Hispanic White)										
Non-Hispanic Black	2.56	0.559	3.78	0.296	2.10	0.620	5.77	0.162	3.68	0.420
Hispanic	-1.46	0.711	-0.35	0.928	0.72	0.852	-1.48	0.709	-0.21	0.955
Other	3.67	0.175	9.53	0.001	4.61	0.068	8.71	0.002	3.95	0.129
Caregiver's education (ref. ≤ high school)	0.36	0.864	3.36	0.147	1.25	0.548	2.38	0.251	0.43	0.825
Caregiver's gender (ref. male)	-3.78	0.150	-5.79	0.017	-2.13	0.279	-7.66	0.014	-3.67	0.198
Poverty (ref. above poverty)	-0.26	0.911	-2.59	0.257	-1.20	0.607	-1.75	0.435	-0.49	0.828
Caregiver's mental health	-0.56	0.001	-0.29	0.034	-0.01	0.873	-0.50	0.001	-0.47	0.003
Caregiver's physical health	0.03	0.686	-0.04	0.664	-0.30	0.070	-0.01	0.960	0.02	0.830

Note. Only report models with significant interaction results were reported

^aNeglect Abuse X Caregiver's Mental Health. ^bSexual Abuse X Caregiver's Mental Health. ^cEmotional Abuse X Caregiver's Mental Health.

Figure 1. Interactions Between Neglect and Caregivers' Mental Health

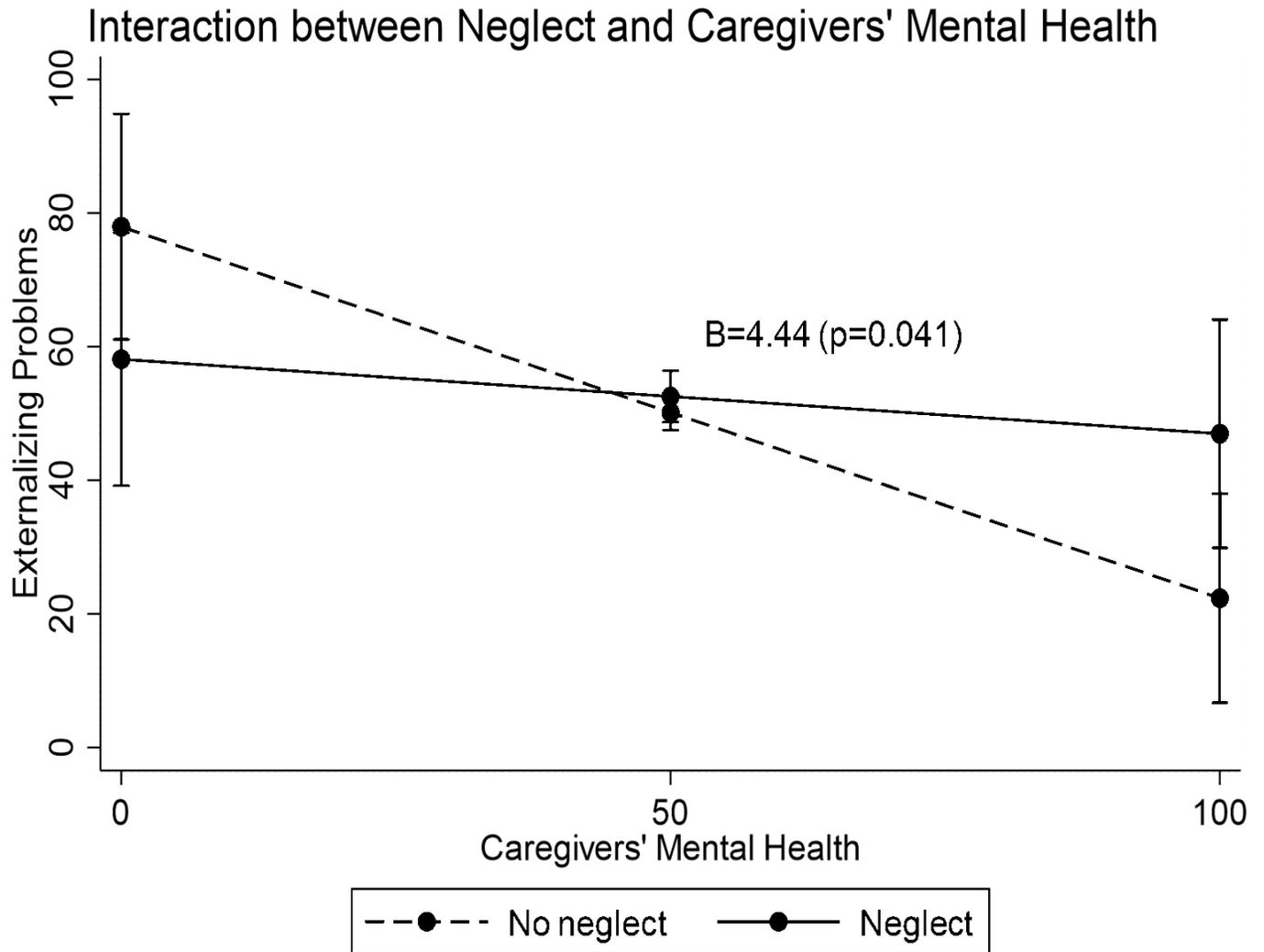


Figure 2. Interactions Between Sexual Abuse and Caregivers' Mental Health

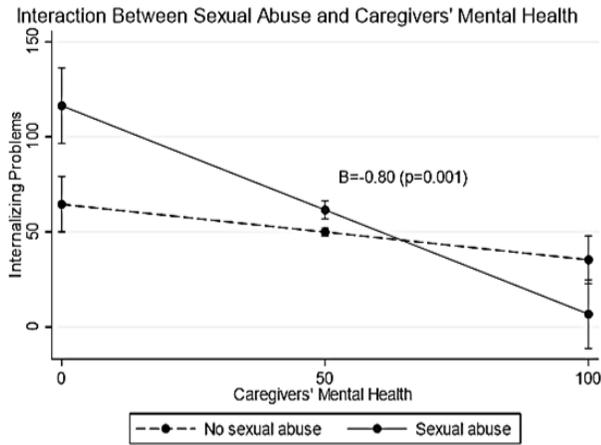


Figure 2a. Interaction Between Sexual Abuse and Caregivers' Mental Health on Internalizing Problems

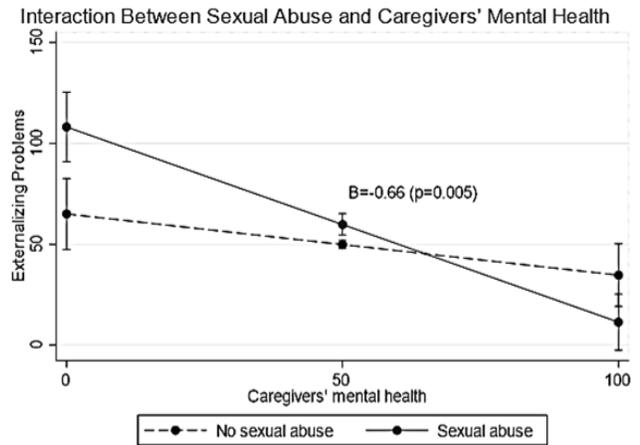


Figure 2b. Interaction Between Sexual Abuse and Caregivers' Mental Health on Externalizing Problems

Figure 3. Interactions between Emotional Abuse and Caregivers' Mental Health

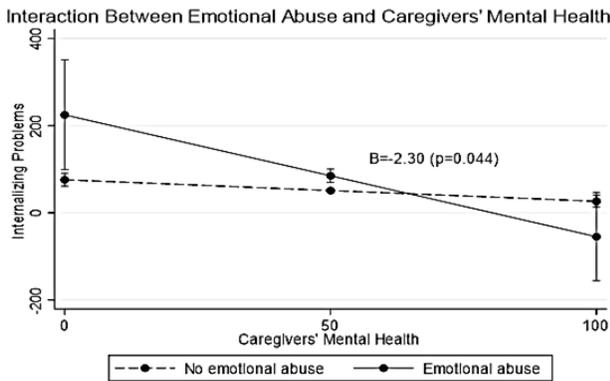


Figure 3a. Interaction Between Emotional Abuse and Caregivers' Mental Health on Internalizing Problems

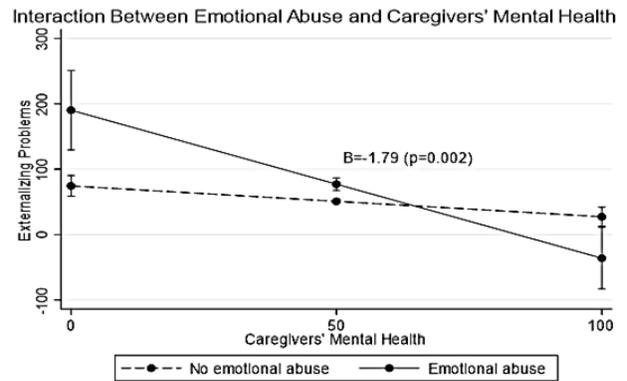


Figure 3b. Interaction Between Emotional Abuse and Caregivers' Mental Health on Externalizing Problems