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ORIGINAL PAPER

Household Spanking and Early Head Start Children's Subsequent Externalizing Behaviors: Role of Maternal Supportive Parenting

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Abstract

This study examines the contribution of spanking experience and maternal supportive parenting at age 5 on early adolescent's externalizing behaviors across parent, teacher, and child reports, and whether maternal supportive parenting moderates the longitudinal link between spanking on externalizing behaviors across different informants among economically disadvantaged children. Mothers of 2292 children (50.8% boys, 39.2% White, 36% Black, 23.2% Latino) from the Early Head Start Research and Evaluation Project reported child spanking experience at age 5 and supportive parenting assessed through observations of home environment and mother-child play activity. Externalizing behaviors were rated by parents, teachers, and children at grade 5. After controlling earlier aggression and relevant demographics, spanking at age 5 significantly predicted increases in externalizing behaviors at grade 5 reported by parents and children. Supportive parenting from mothers protected economically vulnerable children from the negative impact of spanking on parent-reported externalizing behaviors. We discuss implications for early childhood programs to support long-term child well-being.

Keywords Spanking · Supportive parenting · Externalizing behaviors · Early childhood · Early Head Start Research and Evaluation Project

Highlights

- Examined the relations between early parenting practices and child externalizing behaviors for children living in poverty.
- Externalizing behavior was reported by parents, teachers, and children at grade 5.
- Spanking experience at age 5 predicted more externalizing behavior at grade 5 reported by parents and children, not teachers.
- Maternal supportive parenting buffered the association between early spanking and parent-rated externalizing behavior.
- No interaction between supportive parenting and spanking was found on teacher-rated or child-reported externalizing behavior.

One of the core tenets in the field of developmental science is that parenting behaviors influences child behaviors and development. Parents, especially mothers, play the most important role in the early years of children's lives and their parenting practices have profound impacts on children's development over time. A large body of evidence shows that supportive parenting – warm, thoughtful, and responsive parenting that supports a mutually caring and respectful mother-child relationship – is beneficial for child outcomes in the long term, including fewer externalizing behavioral problems (e.g., Boeldt et al., 2012; Hardaway et al., 2012). Externalizing behaviors is a constellation of noncompliant behavioral problems (i.e., disruptive, aggressive, and/or delinquent behavior; Dodge et al., 2006). These behaviors in childhood are often considered as a critical predictor for delinquent behaviors during adolescence and violence and crime in adulthood (Liu, 2004; Schmidt et al., 2021).

While the positive effects of supportive parenting in child development have been well-established, there is more debate on the influence of negative parenting behaviors,

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such as spanking and punitive punishment. Most research suggests that parents' use of spanking as a discipline technique, especially in early childhood, is associated with negative child outcomes, including increased externalizing behaviors concurrently and over time (Avezum et al., 2022; Berlin et al., 2009; Gershoff, 2002), while other researchers argue that appropriate disciplinary spanking can be beneficial in correcting children's problem behaviors (Larzelere & Fuller, 2019). The unresolved debate regarding the effects of spanking on child behavioral outcomes leads to an important question – are the effects of spanking on child externalizing outcomes dependent on the context of supportive parenting discipline?

Parents from low-income backgrounds experience financial challenges and emotional stress, which may reduce their patience and ability to take the perspective of their child. This can either lead to more disengaged, inconsistent or harsh parenting (Conger et al., 2000; Ho et al., 2022; Ward & Lee, 2020). Relatedly, externalizing behaviors have been shown to be more common in children from low-income families compared to their more affluent peers (Letourneau et al., 2013; McNeilly et al., 2021). Considering poverty as a risk factor, the practices of supportive parenting may be particularly important for the development of children from low-income families. However, very few studies to date have examined whether supportive parenting practices in mothers serve as a protective factor against the negative association between spanking in early childhood and child externalizing behaviors longitudinally for children from low-income backgrounds. In addition, prior studies of the influence of parenting practices on child externalizing behaviors have often used only parent reports to assess children's behaviors (Berlin et al., 2009; MacKenzie et al., 2015). It is logical that parent perceptions of children's behaviors will be closely associated with parenting behaviors. However, it is important to understand whether parenting practices are also associated with other people's perceptions of children's externalizing behaviors, such as teachers and children themselves. The current study sought to extend upon previous literature to explore how spanking experience in early childhood contributes to early adolescent's externalizing behaviors based on three informant sources (i.e., parent, teacher, and child self) and whether maternal supportive parenting buffers the negative relationship between household spanking and child externalizing behaviors longitudinally across different informants among children from low-income families.

Spanking and Child Externalizing Behaviors

Abundant research has demonstrated the connections between spanking in the early years and a number of negative child and adolescent outcomes, such as aggression, depression, externalizing and internalizing behaviors (Gershoff, 2002; Lansford et al., 2012; Miller-Perrin & Perrin, 2018), and over 60 countries have banned spanking and other forms of corporal punishment in all settings, including homes (UNICEF, 2023). Despite that, spanking is widely considered acceptable in the U.S. For instance, a nationally representative study of U.S. adults found that over 70% of surveyed American adults agreed that spanking is an acceptable discipline strategy (Smith et al., 2015). Furthermore, Finkelhor et al. (2019) found that 49% of American parents reported that they have spanked their child aged 0 to 9 in the past year. A recent study looking at the trends of parental attitude and use of spanking over the last 30 years found that parents from high-income and education backgrounds, especially in the non-southern states in the U.S., were less likely to endorse spanking over time, while parents from low-income backgrounds and those from the southern states were consistent over the 30 year period in highly supporting the use of spanking (Hines et al., 2022). This highlights a preference of using spanking particularly in low-income populations.

To correctly interpret the findings of the effects of spanking on child outcomes in research, it is important to differentiate spanking from more severe physical punishment and physical abuse. Therefore, we follow the definition that spanking is a form of physical punishment that caused some degree of pain but not harm or injury, with the purpose of correcting and controlling behaviors (Straus, 2010). There are two main schools of researchers holding opposite views of spanking. One school, led by Gershoff and Straus, believes that physical discipline is detrimental to child development both concurrently and over time (Gershoff, 2002; 2016; Gershoff et al., 2012; Straus, 2001, 2005). There is strong empirical evidence that children who were spanked at young age are at a higher risk of having increased aggressive and antisocial behaviors in later years, including an increase in violent behaviors toward marital partner or child as an adult than children who were not spanked (i.e., Berlin et al., 2009; Gershoff et al., 2018; MacKenzie et al., 2015; Taylor et al., 2010). For instance, MacKenzie et al. (2015) used the sample from the Future of Families and Child Well-being Study (FFCWS) and demonstrated that from age 1 to age 3, age 5, and age 9, earlier spanking experience consistently predicted children's later externalizing behaviors, which in turn predicted subsequent spanking. More recently, Avezum et al. (2022) systematically reviewed 34 studies from 10 countries on maternal spanking and child behaviors and concluded that there is a strong connection between maternal spanking and externalizing behaviors concurrently and as children get older.

One possible explanation of spanking's negative effect is that children view parental behaviors as a model, and that

experiencing spankings make children believe that hitting is legitimate and therefore they tend to use physical violence to resolve conflict. Attachment theory and social control theory offer another explanation, that spanking undermines the parent-child relationship, which is detrimental for child development in many ways, including insecure attachment and less likelihood that children will internalize parents' moral values and thus engage in more aggressive and antisocial behaviors (Gershoff, 2002).

The opposing argument, led by Larzelere and Baumrind is that spanking can be beneficial, neutral or deleterious depending on the context of using it (Baumrind et al., 2002; Larzelere, 2000; Larzelere & Kuhn, 2005; Larzelere et al., 2018). Ferguson (2013) conducted a meta-analysis on the longitudinal effect of spanking, showing that the impacts of spanking on children's externalizing and internalizing behaviors are significant but minimal. Similarly, Barajas-Gonzalez et al. (2018) found a nonsignificant association between spanking at preschool age and child internalizing and externalizing behaviors one year later. There are several explanations for why the two camps of research find different effects of spanking. One possibility is that different definitions/forms of spanking were utilized in prior studies. Larzelere (2000) demonstrated that the detrimental outcomes of spanking happen only in severe forms of physical punishments or in frequent use. Another possibility is that the context of how spanking is used was not carefully considered. Some research showed that using spanking as a backup discipline strategy, referred to "backup spanking", and the parent often showing affection for the child afterward, is associated with better behavioral outcomes compared to never-spanked children (Larzelere & Kuhn, 2005). In other words, while using spanking, it is best to explain to children why they were spanked, and it is not because of anger or out of rage, or that their parents do not love them. The backup spanking emphasizes the importance of a positive environment when using spanking for discipline.

Supportive Parenting and Child Externalizing Behaviors

There is consistent evidence that supportive parenting is beneficial in reducing children's later externalizing behaviors (Boeldt et al., 2012; Hardaway et al., 2012). Evidence from parenting intervention studies supports the idea that improving parenting skills and parenting self-efficacy is an effective strategy to reduce child externalizing behavior problems (for reviews, see Tully & Hunt, 2016). In addition, mother's responsive parenting tends to have a stronger association with children's behavior problems than fathers' parenting (Ward & Lee, 2020). A longitudinal study conducted by Boeldt et al (2012) showed that mother's positive parenting in the first three years was negatively associated with externalizing behaviors in childhood. The effects of supportive parenting on reducing child externalizing behaviors have also been found for atypical children at-risk for adverse outcomes (Chronis et al., 2007). The association between maternal supportive parenting and child developmental outcomes was also found in economically vulnerable children (Knerr et al., 2013). Thus, it is highly possible that supportive parenting in mothers can be particularly important for children from economically disadvantaged families, helping against the negative effects of poverty and related at-risk factors (Brown et al., 2020).

Informed by the bioecological systems theory, the developing child is impacted by several layers of environmental factors, including the microsystem of the family, such as parenting practices, and the exosystem of parents' economic situation, such as poverty and economic stress (Bronfenbrenner & Morris, 1998). According to the family stress model, poverty and economic stress causes parenting difficulties and affects parent-child relationships, which in turn impacts child outcomes, such as externalizing and internalizing problems, social and interpersonal relationships, among other outcomes (Conger et al., 2000; Masarik & Conger, 2017). The experience of supportive and responsive parenting may buffer children against negative impacts of poverty and financial stress. Supportive parenting in mothers may actively build a secure attachment with children and enhance mother-child relationship, and thus reduce children's behavior problems (Wiggins et al., 2009; Van Zeijl et al., 2006).

Interaction of Spanking and Supportive Parenting

Although supportive parenting and spanking seem to have opposite impacts on the parent-child relationship and child outcomes, they are not always correlated with each other (Altschul et al., 2016). For instance, Altschul et al. (2016) has examined how both maternal spanking and maternal warmth predict children's social skills and aggression in early childhood using the data from the FFCWS. They found that spanking at age 3 was associated with child aggression at age 3 and age 5, while maternal warmth did not have a significant effect on child aggression concurrently and over time. They highlight the fact that maternal spanking was not related to maternal warmth, and they may coexist in parenting practices. Considering that both spanking and supportive parenting are critical predictors of children's externalizing behaviors, it is important to have a comprehensive understanding of how the negative and supportive parenting practices interact and explain children's behavior adjustment.

Several previous studies, to date, have shown that supportive parenting practices may buffer the impacts of spanking on child behavioral problems. For instance, McKee et al. (2007) reported that high parental warmth in the presence of high physical discipline was associated with fewer disruptive behaviors reported by parents in 10-to 11-year-old American children. With a younger sample of 3- to 8-year-old children in England and the United States, Deater-Deckard et al. (2006) found that maternal warmth was negatively associated with parent-reported child externalizing behaviors and moderated the relationship between harsh physical discipline and child externalizing problems. It is worth noting that both studies focused on cross-sectional correlational associations. A limited number of longitudinal studies in early childhood addressed both effects of spanking and supportive parenting, but they did not find similar moderating effects to cross-sectional studies. For instance, Lee et al. (2013) reported that maternal warmth when children were 3 years old did not moderate the negative association between spanking and child aggression from age 3 to age 5. Even when maternal warmth is present, spanking was associated with increased child aggression. Likewise, Stacks et al. (2009) using the Early Head Start Research and Evaluation Project (EHSREP) data found that maternal warmth did not act as a moderating factor for the effects of spanking at age 14-month, 24-month, and 36-month on parent-reported aggressive behaviors at 36 months across White, Hispanic, and African American families. Despite utilizing large-scale longitudinal samples, these studies exclusively depended on parental reports of children's behaviors and short-term longitudinal data, which may introduce bias. With a longitudinal design, Lansford et al. (2014) utilized samples aged 7- to 10-year-old across eight counties and found a moderation effect between spanking experience and maternal warmth on the growth of mother-reported aggression over time, but not child-reported aggression, especially in those more-authoritarian cultures. It is also worth noting that although maternal warmth may buffer some negative effects of spanking on child behavioral outcomes, it does not eliminate or reverse the negative effects of spanking (Gershoff, 2002; Stacks et al., 2009). The inconsistencies in findings regarding the interaction may stem from methodological factors, such as differences in reporters and the longer-term nature of longitudinal designs.

The Current Study

Previous studies looking into the effects of parenting practices, such as spanking, on child externalizing behaviors mostly used parent reports as measures of children's behavioral outcomes (for review, see Gershoff & Grogan-Kaylor, 2016; Lee et al., 2020; MacKenzie et al., 2015). Parent reports of children's externalizing behaviors only represent children's externalizing behaviors in one specific context - at home, and behaviors that are visible to parents, which limits the generalization of the impacts of spanking on child externalizing outcomes. Another key question that remains to be addressed is how the context of supportive parenting might buffer the longitudinal link between spanking experience in early childhood and child externalizing behaviors in later childhood. A related concern is that few studies have examined the unique role of maternal supportive parenting for children in economically at-risk backgrounds, with high exposure to spanking and at risk of increased externalizing behaviors.

The present study aims to address the above research gaps, using the most recent two time points' data (age 5 and fifth grade) from the EHSREP dataset. Children at around age 5 generally have developed certain levels of cognitive abilities, allowing for a better understanding of the causes behind spanking and its resulting consequences, compared to younger children. It is likely that as children grow, the moderating role of supportive parenting can be stronger in the relation between spanking and child externalizing behaviors. A longitudinal design focusing on child externalizing behavior in later years enables us to investigate whether spanking experience in kindergarten age contributes to subsequent externalizing behaviors over time above and beyond children's baseline behavior problems. Additionally, this dataset allows us to comprehensively capture children's behavioral experience from various sources, including parents, teachers, and the children themselves. Thus, the current study has two main research questions:

1. In a sample of low-income families, is spanking experience at age 5 associated with children's externalizing behaviors in fifth grade, across different informant sources on externalizing behaviors (i.e., parent, teacher, and child reports)? We hypothesized that being spanked at age 5 would correlate with increased externalizing behaviors in fifth grade reported by different reporters (i.e., parents, teachers, and children), even after controlling for children's behavioral problems at age 5 and relevant child and family demographics.
2. Is the link between spanking experience at age 5 and children's externalizing behaviors in fifth grade moderated by maternal supportive parenting at age 5? Based on the theoretical rationale and previous literature, we hypothesized that after controlling for earlier externalizing behavior and significant child and family demographic factors, supportive parenting in

mothers would moderate the negative impact of spanking experience at age 5 on low-income children's externalizing behavior problem in fifth grade.

To ensure the relevant child and maternal factors do not interfere with the findings to our research questions, we accounted for a number of relevant child and family demographics in all the path analysis. As to whether attending the EHS program or not was the nature of the intervention study - EHSREP, and children who from different program sites may had varied childcare experience, we controlled for program status and program site. Additionally, previous studies supported that parents tend to employ different parenting strategies in boys and girls and in different ethnic/racial groups (i.e., Mckee et al., 2007; Strom et al., 2008). Studies have also consistently demonstrated marked differences in externalizing behaviors across genders, ethnicities, and socioeconomic status (i.e., Endendijk et al., 2017; Gershoff et al., 2012). Another unique factor that connects to mother's parenting practices is maternal depression (Lovejoy et al., 2000). Therefore, we also controlled for child gender, ethnicity, and household income and maternal depression at age 5 to account for their interference with the parenting behaviors and/or children's externalizing behaviors.

Method

Data and Participants

The population consisted of 3001 children and families who participated in the Early Head Start Research and Evaluation Project (ESHREP), a longitudinal evaluation study of the federal Early Head Start (EHS) program from 17 sites across the United States (Administration for Children Youth and Families, 2002). Families were randomly assigned to the EHS program or the control who receives other services but not the EHS program (Administration for Children Youth and Families, 2002). Baseline demographic data were collected from all participants when they applied for the EHS program, and follow-up data were collected when the focus child was 14, 24, 36 months old, before entering kindergarten, around 5 years old, and when at the end of fifth grade, around 11 years old, ranging from 1996 to 2010 (Love et al., 2013). The use of secondary data for this study was approved by the Institutional Review Board (IRB Protocol Number: X22-0195) at the University of Connecticut.

The current study focused on data from age 5 and fifth grade time points and included 2292 mother-child dyads (50.8% boys, 38% White, 35.7% African American, 22.4% Latino, 3.9% Other) and their families. Based on the original 3001 child and families in the EHSREP, we excluded children whose primary applicant for the study was not mothers, such as grandparents or fathers ($n = 17$), because the primary applicants completed the parent-child interaction activities for parenting assessment, and we are particularly interested in mother's parenting here. In addition, participants with no data at both two time points were excluded ($n = 692$). In the analytical sample, over one third of mothers (38.7%) were teens at the time of the focus child's birth. At the time of entering Kindergarten (age 5), 29.5% of the mothers reported living alone with their child or children, and nearly half of mothers (46.4%) did not have a job. Mothers, on average, did not obtain the high school diploma ($M = 11.87$ years of education, $SD = 2.54$). The reported mean household income is \$27872.23, SD = \$20658.18. The detailed demographic information is summarized in the Supplemental.

Measures

Spanking Experience at Age 5

When children were around 5 years of age, mothers reported if they or anyone in the household had spanked the focus child in the past week, and if so, how often this happens in the past week. We coded the spanking experience as binary (0 = no spanking experience, 1 = has spanking experience) for two reasons. First, since the study only inquired about spanking experience within the past week, even a single instance during the time frame could be considered as frequent spanking. Past research has commonly defined less than once a week as infrequent spanking (e.g., Kang, 2022; Lansford et al., 2012), however, it is possible that some rare cases of spanking happened in the past week but were not common in other weeks. Therefore, we did not introduce additional categories for either infrequent spanking or frequent spanking. Second, about one third of children in the sample were reported having spanking experience at home (37.3%), and the frequency of spanking in the past week among these children was leptokurtic and skewed, thus we avoided treating the spanking experience as continuous variable.

Supportive Parenting at Age 5

Supportive parenting is a composite variable constructed from two observational ratings of mother's warmth and supportiveness at age 5 time point. Given the differed scale range, two scores were first standardized and then averaged. *Parental warmth* was measured by observer ratings using the parental warmth subscale in the Home Observation for Measurement of the Environment, Preschool version (HOME: Caldwell & Bradley, 1984). This subscale

includes six items of responsive and supportive parenting behaviors (i.e., verbally answered the child's questions or requests, spontaneously praised the child's behavior). During a home visit, trained interviewers assessed if these supportive parenting behaviors were observed (Yes = 1) or not (No = 0) in the parent-child interaction. A sum score of parental warmth was obtained, ranging from 0 to 6, with higher scores indicating greater parental warmth. The subscale demonstrated acceptable internal consistency (Cronbach's $\alpha = 0.72$).

Parental supportiveness was rated by trained researchers through videotapes of parents' behaviors during a parent-child interaction task (Fauth et al., 2003). In this task, parents were instructed to play with their child using provided Play Doh and play dough tools for 10 min. The interaction session was videotaped, and the ratings by trained researchers were based on a 7-point scale while reviewing the videotapes, with 1 indicating the parent is always emotionally unavailable, negative or non-responsive and 7 indicating the parent is always emotionally available, and positively support children's autonomous exploration. Intercoder agreement was 94% for parental supportiveness.

Externalizing Behaviors at Grade 5

Parent-rated externalizing behaviors using Child Behavior Checklist for ages 6–18 (CBCL, Achenbach & Rescorla, 2001) The externalizing behavior score is a composite score of two subscale scores: aggressive behavior (18 items), and rule-breaking behaviors (17 items) using a 3-point scale. Responses were coded as 0 = not true, 1= sometimes/ somewhat true, 2 = very or often true. The total score ranged from 0 to 70, with high internal consistency in this sample (Cronbach's $\alpha = 0.91$).

Teacher-rated externalizing behaviors using Social Skills Rating Scale (SSRS; Gresham & Elliott, 1990) The SRSS is a standardized measure by which teachers rate children's prosocial skills and problem behaviors (e.g., internalizing, externalizing behaviors) in the school context (Gresham & Elliott, 1990). The externalizing subscales include six items, requesting teachers to rate children's problem behaviors such as fights, argues, easily get angry, etc. Teachers rated on a 3-point scale: 0 = never; 1 = sometimes; 2 = often or very often. The sum score of the six items was computed, ranged from 0 to 12. The SSRS - teacher report is demonstrated internally consistent ($rs = 0.94$ - 0.96) and has a high test-retest reliability in the problem behavior subscales ($r = 0.84$) (Elliott et al., 1988; Gresham & Elliott, 1990).

Child-reported delinquent behaviors Items were drawn from the National Institute of Child Health and Human Development Study of Early Child Care and Youth Development (Loeber et al., 1989). It includes 14 items and children were asked if they had ever committed each of a series of delinquent behaviors using a 2-point scale (1 = yes or 0 = no). For example, "Taken or stolen something from a store without paying for it" and "Cheated on a school test." The score ranged from 0–14, with moderate internal consistency (Cronbach's $\alpha = 0.66$).

Covariates

The covariates included EHS program, program site, parented reported child gender, ethnicity and household income, as well as maternal depression and child aggressive behavior at age 5. *Maternal depression* was measured by the Center for Epidemiological Studies Depression Scale - Short Form (CES-D-SF; Radloff, 1977). The short form includes 12 items, which asked the mothers how often in the past week they had a particular symptom of depression, such as loneliness, sadness, poor appetite, and lack of energy, with 4-point scale (0 = rarely, 1 = some, 2 = occasionally, 3 = most). Total score ranged from 0 to 36 and higher scores indicate a greater number of depressive symptoms (Cronbach's $\alpha = 0.88$). The mean maternal depression score is 8.26, with 44.2% of mothers indicated an elevated symptom of depression (cutoff value > 8). *Aggressive behavior* at age 5 was reported by parents through Child Behavior Checklist for ages 1.5 to 5 years old (Achenbach & Rescorla 2000). It includes 19 items asking parents how true each of the aggressive behaviors were for their child using a 3-point scale (0 = not true, 1= sometimes/ somewhat true, 2 = very or often true). The total score ranged from 0 to 38, with high internal consistency in this sample ($\alpha = 0.89$).

Data Preparation and Analytical Plan

Missingness

The EHSREP data and detailed information on all the measures is publicly available at the Henry A. Murray Research Archive and Child and Family Data Archive: https://www.childandfamilydataarchive.org/cfda/archives/cfda/studies/3804/summary. For the key variable of interests, teachers reported externalizing behavior has the highest missingness (63.9%), while the other variables have missingness ranged from 11.3% to 32.9%. From the Age 5 time point to Grade 5 time point, the attrition rate is 29.2% (n = 670). The missingness was not related to children's externalized or delinquent behaviors; however, the site and maternal education predicted missingness at grade 5, with children in certain sites and mothers with higher education were more likely to drop out at fifth grade. The missing

Table 1 Correlations between Demographic Variables and Key Variables

	Spanking @age 5	Supportive parenting @age 5	Parent-rated externalizing behaviors @grade 5	Teacher-rated externalizing behaviors @grade 5	Child reported delinquent behaviors @grade 5
Program	−0.02	0.05*	−0.02	0.01	0.00
Child gender	0.03	−0.02	0.12***	0.14***	0.20***
Family income	0.01	0.06**	−0.08***	−0.08***	−0.03
Maternal depression	0.16***	−0.10***	0.21***	0.08***	0.11***
White	−0.05*	0.09***	0.14***	−0.13***	−0.03
Hispanic	−0.08***	0.05*	−0.11***	−0.13***	−0.07***
Black	0.11***	−0.14***	−0.03	0.25***	0.09***
Aggression @age 5	0.25***	−0.14***	0.48***	0.17***	0.17***
Spanking @age 5		−0.06**	0.23***	0.10***	0.10***
Supportive parenting @age 5			−0.10***	−0.13***	−0.11***
Parent rated externalizing behavior @grade 5				0.32***	0.38***
Teacher rated externalizing behavior @grade 5					0.34***

Program: attended Early Head Start program = 1, control group = 0; Child gender: male = 1, female=0

* p <0.05, ** p <0.01, *** p <0.001

pattern in the data was considered as Missing at Random (MAR), as the missingness was not related to the key variables of interests (Graham et al., 2003). Multiple imputation with 30 imputations, was used to impute the missing data. As a sensitivity analysis, the key analysis has been tested using listwise deletion and the results essentially remained the same.

Analytical plan

Data was analyzed using RStudio (RStudio Team, 2020). The categorical control variables with mora than two categories (i.e., program site, ethnicity) were dummy coded and the reference group was removed from analysis. We first examined the zero-order correlations between the key variables and control variables (see Table 1). Next, two structured equation models (SEM) were run to examine the proposed research questions; the first model examined the longitudinal effects of parenting practices (spanking and supportive parenting) on children's externalizing behaviors from different informants, and the second model included the interaction effect of spanking and supportive parenting. Both models accounted for the covariates listed earlier. As the Chi-square statistics is quite sensitive to sample size (though still reported), we mainly utilized four model fit indices to evaluate the goodness of model fit, with Comparative Fit Index (CFI) and Tucker Lewis index (TLI) >0.95, and the Root-Mean-Square Error of Approximation (RMSEA) <0.06 and Standardized Root Mean Square Residual (SRMR) <0.08 suggesting a good model fit (Hu & Bentler, 1999; Kline, 2015).

Results

Preliminary Analysis and Correlations between Covariates and Key Variables

Before entering kindergarten, 37.3% of the caregivers reported that they or others in the household had spanked the child at least once in the past week. The frequency of spanking for the full sample ranged from 0 to 20, with mean of 0.70, SD = 1.32. Among children who had spanking experience, the mean number of spankings in the past week was 1.83 (SD = 1.26). As shown in Table 1, mothers with higher numbers of depressive symptoms were more likely to use spanking on children ($r = 0.16$, p <0.001). Compared to White and Hispanic children, African American children were more likely to be spanked in the past week ($r = 0.11$, p <0.001). Attending the EHS program was related to more supportive parenting at age 5 compared to those who did not ($r = 0.05$, $p = 0.02$), but EHS program status was not associated with spanking experience at age 5 or child externalizing behaviors at fifth grade. Meanwhile, the levels of mothers' supportive parenting at age 5 were associated with family income ($r = 0.06$, $p = 0.003$), and maternal depression ($r = -0.10$, $p < 0.001$). Importantly, supportive

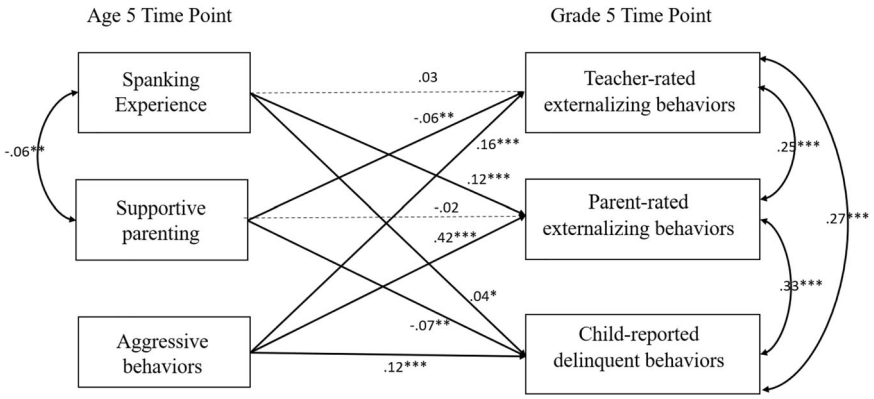


Fig. 1 Standardized path coefficients for the model indicating longitudinal relations of spanking and positive parenting to children's externalizing behaviors from different informants. *Note*. $*p < 0.05$; $**p < 0.01$; $***p < 0.001$. Solid arrows indicate statistically significant associations at the p < 0.05 level. Dashed lines indicate null associations. Standardized coefficients are reported. EHS program intervention, program site, child gender, ethnicity, family income at age 5 and maternal depression at age 5 were accounted for in this model. Aggressive behavior at age 5 was also treated as covariate but included in this figure model

parenting was negatively associated with the spanking experience ($r = -0.06$, $p = 0.003$).

Boys tend to have higher externalizing behaviors than girls across all informant sources. Maternal depression was positively associated with all behavioral outcomes. Family income was associated with externalizing behaviors by parent and teacher reports but was not associated with children's self-reported delinquent behaviors. All the demographic factors that were associated with the outcome variables were included in the path analysis as covariates. Having experienced spanking in the past week or not at age 5 was positively associated with all the behavioral outcomes at fifth grade, however, maternal supportive parenting at age 5 was negatively associated with all the outcomes at fifth grade. Meantime, the externalizing behaviors from different informant sources were closely correlated with each other.

Effect of Spanking and Supportive Parenting on Child Externalizing Outcomes

We conducted a series of path analysis through Structural Equation Modeling using R lavvan package (Rosseel, 2012) with two main goals: 1) to examine whether household spanking and mothers' supportive parenting at age 5 consistently predicts children's externalizing behaviors at fifth grade reported by different parties and 2) to explore whether there is an interaction effect between spanking and maternal supportive parenting on fifth grade children's externalizing behaviors.

To answer our first research question, we tested a path analysis model in which household spanking and maternal supportive parenting at age 5 were correlated with each other and regressed on children's behavioral outcomes at fifth grade reported by teachers, parents, and the child self. In this model, we allowed the three outcome variables to be correlated with each other. When we controlled for the covariates (i.e., program, program site, child gender, ethnicity, family income, maternal depression at age 5), but not children aggression at age 5, the model fit the data well, $\chi 2$ (46) = 380.08, CFI = 0.999, TLI = 0.998, RMSEA = 0.056, SRMR = 0.022. Path analysis showed that both household spanking and supportive parenting in mothers were significant predictors of children's behavioral problems across different reporters (*ps* <0.001).

When we also accounted for children's aggression at age 5 as a covariate, the model showed a satisfactory fit to the data, $\chi 2$ (48) = 559.49, CFI = 0.999, TLI = 0.996, RMSEA = 0.068, SRMR = 0.027. Figure 1 presents standardized estimates for the path coefficients of significant ($p < 0.05$). Children's aggressive behavior at age 5 was a significant predictor for the three behavioral outcomes at fifth grade reported by different informants (*ps* <0.001). Supportive parenting and spanking were negatively covaried at age 5 ($p = 0.008$). That is, compared to children who had no spanking experience in the past week at age 5, children with spanking experience at age 5 experienced less maternal supportive parenting at age 5. After controlling for a series of relevant demographic factors and child aggression at age 5, spanking experience at age 5 was a significant predictor of children's externalizing behavior at fifth grade reported by parents (B = 1.62, SE = 0.25, p <0.001) and delinquency reported by children themselves (B = 0.13, SE = 0.06, $p = 0.042$). However, maternal supportive parenting at age 5 reliably predicted children's externalizing behavior reported by teachers (B = −0.11, SE = 0.04, $p = 0.004$) and delinquent behaviors reported by children (B = −0.10, SE = 0.03, $p = 0.001$).

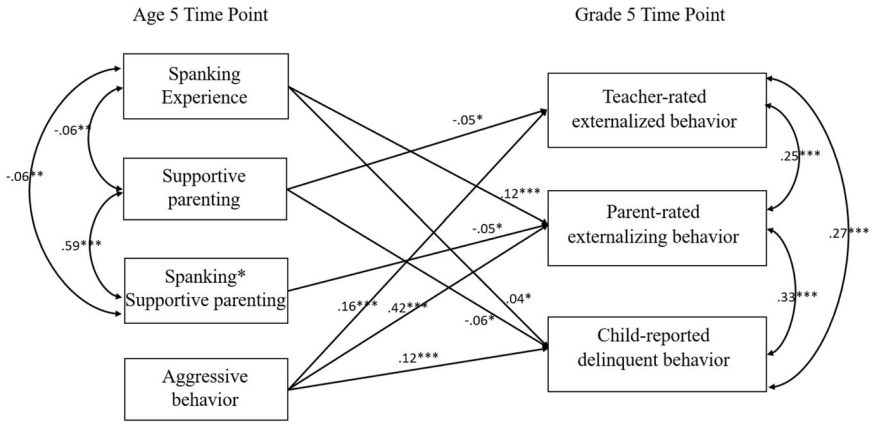


Fig. 2 Standardized path coefficients for the interaction model of spanking and positive parenting on children's externalizing behaviors from different informants. *Note*. $^{*}p < 0.05$; $^{**}p < 0.01$; $^{***}p < 0.001$. Solid arrows indicate statistically significant associations at the p < 0.05 level. Standardized coefficients are reported. EHS program intervention, program site, child gender, ethnicity, family income at age 5 and maternal depression at age 5 were accounted for in this model. The covariate aggressive behavior at age 5 was also included in this figure model

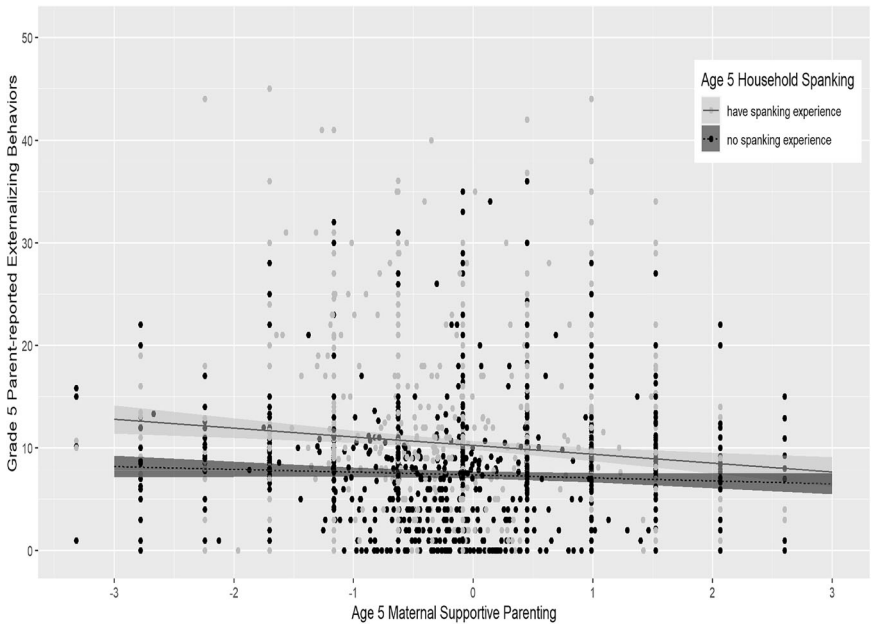


Fig. 3 The interaction effect of spanking and supportive parenting at age 5 on parent-rated child externalizing behaviors at grade 5. *Note*. Maternal supportive parenting (the moderator) is plotted on the x-axis because it is a continuous moderator, and separate lines are shown for each level of the binary independent variable (spanking). This approach follows standard recommendations for visualizing interactions between categorical and continuous variables (Aiken & West, 1991; Hayes, 2018)

Interaction between Household Spanking and Supportive Parenting

To test our second research question, based on the first model, we included the interaction term *spanking X supportive parenting* as a predictor of all the three outcome variables. Similarly, all the covariates including child aggression at age 5 were included in the model and controlled. The supportive parenting in mothers was mean centered to avoid multicollinearity. All the three predictors were allowed to be covaried with each other. As Fig. 2 shows, the data fits well to the conceptualized model, $\chi 2$ (72) = 584.52, CFI = 0.999, TLI = 0.997, RMSEA = 0.056, SRMR = 0.028. When we added the interaction term, children's aggressive behavior at age 5 was still a robust predictor for the three behavioral outcomes at fifth grade reported by different informants (*ps* <0.001). Household spanking at age 5 remained as a significant predictor of children's behavioral outcomes reported by parents (B = 1.60, SE = 0.25, $p < 0.001$) and children themselves (B = 0.13, SE = 0.06, p =0.043). Maternal supportive parenting at age 5 significantly predicted teacher reported children's externalizing behaviors (B = −0.10, SE = 0.05, p =0.032) and child reported behavioral outcome at fifth grade (B = −0.09, SE = 0.04, p =0.011). Importantly, the interaction between spanking and supportive parenting at age 5 significantly predicted parent-rated behavioral problems at fifth grade (B = −0.51, SE = 0.25,

$p = 0.044$), but not teacher-rated or self-reported behavioral outcomes.

We further conducted simple slope analysis to interpret the interaction effect that were found from the above path analysis and plot the interaction. To visualize this interaction, we plotted predicted values of parent-rated externalizing behavior at fifth grade across levels of maternal supportive parenting, with separate lines for children who were spanked and those who were not at age 5 (see Fig. 3). Although spanking is the independent variable and maternal supportive parenting is the moderator, it is standard practice to place the continuous moderator on the x-axis when plotting interactions between a categorical independent variable and a continuous moderator (Aiken & West, 1991; Hayes, 2018). This allows for clearer interpretation of how the association between maternal supportive parenting and the outcome differs by spanking status. When children had not experienced spanking in the past week at age 5, maternal supportive parenting had limited association with parent reported children's externalizing behaviors ($B = -0.07$, $SE = 0.14$, $p = 0.619$), while for children had spanking experience at age 5, maternal supportive parenting was associated with decreased externalizing behaviors at fifth grade ($B = -0.49$, $SE = 0.25$, $p = 0.047$). Meantime, children with spanking experience at age 5 exhibited higher level of externalizing behaviors compared to those without spanking experience at age 5. As maternal supportive parenting increased, this gap in externalizing behaviors between the two groups of spanking experience decreased, with the groups showing similar levels of externalizing behaviors at high levels of maternal supportive parenting.

Discussion

The study addressed an important and debated issue regarding the long-term effects of spanking on children's behavioral adjustment. We expanded upon earlier studies by looking at the longitudinal associations between household spanking and children's behavioral problems in a low-income sample using the EHSREP data. We also explored whether maternal supportive parenting buffers the negative long-term relations between spanking and externalizing behaviors. Most previous studies utilized parental reports of child externalizing behaviors in examining this relationship and little is known if this relation is robust from different informant's perspectives (Lee et al., 2020; MacKenzie et al., 2015). To test this, the current study examines the longitudinal effects of parenting practices when children were around age 5 on children's externalizing behaviors in fifth grade as reported by parents, teachers, and children themselves. We found that among children living in economically disadvantaged families, household spanking at age 5 had a positive association with both parent-reported externalizing behaviors and child-reported delinquency in fifth grade compared to those children who had not experienced spanking at age 5. In addition, maternal supportive parenting buffered the negative association between household spanking at age 5 and child externalizing behaviors in fifth grade reported by parents, but not teacher-reported or self-reported behavioral outcomes.

Over one third of the economically vulnerable sample from the EHSREP dataset experienced spanking at home in the past week at the age of 5. This study lends support to a vast body of research finding that early spanking leads to later child externalizing behavior (e.g., Gershoff, 2002; MacKenzie et al., 2015), even after controlling for a series of child and family demographics and children's earlier behavioral problems. Additionally, this study extends that this positive relation was robust across parents and child reports, but not teacher reports. Parents' reports capture children's externalizing behaviors visible at home or reported to parents by others, while children's self-reports reflect their own perception of delinquent behaviors in general across different social contexts. Teachers' reports mainly limited to the school/classroom context. This suggests that the associations between early household spanking and child behavioral outcomes differ across contexts. Previous studies showed that the power assertive parenting practice toward moral transgressions were associated with increased externalizing behaviors in adolescence, while power assertion over safety violations was linked to decreased externalizing behaviors in adolescence (Sturge-Apple et al., 2022), which generally supports the context-dependent effects of harsh parenting practices.

There are several possibilities to explain the varied links of household spanking experience on children's later externalizing behaviors across contexts based on parent /self-reports versus teacher reports. First, it is likely that household spanking negatively influenced children's externalizing behaviors at home but did not appear to have a detrimental effect on teacher-reported externalizing behaviors at school. School and home context have different social norms which may lead to different consequences due to violations. For instance, children's externalizing behaviors at home may be reinforced by spanking if parents perceive the child is engaging externalizing behaviors and enter a vicious circle (Gershoff et al., 2012), while teachers may utilize different (likely more positive) approaches to tackle this instead of spanking, which break the vicious circle. Second, consistent externalizing behaviors may lead to other consequences at school that they did not experience in the home environment, such as peer exclusion, detention, withdrawal from school etc. Thus, children may likely reduce the likelihood of aggressive/disruptive behaviors at school but feel more comfortable to express their negative

emotions at home and behaving in ways that might not accept in other settings.

Unlike much of the previous spanking research, which focused primarily on its impact on children in a short time period (Gershoff et al., 2012; Larzelere et al., 2023; Lee et al., 2020; MacKenzie et al., 2015), this study is distinctive in its exploration of longitudinal connections between household spanking experiences during early childhood and subsequent externalizing behaviors in early adolescence. Considering the long-lasting effect from early childhood to early adolescence, it is possible that children had internalized the idea that spanking or physical aggression is acceptable to force others to be compliant or an effective strategy to resolve a conflict. In addition, children might model what parents do at home and generalize this approach to different social contexts, such as outdoor play, peer interaction. However, under the guidance of teachers who model different behavioral expectations, they may be aware of the broader social context and social norms, thus externalizing behaviors may not be as visible over time, or they have learned to manifest in subtle forms that teachers may not notice.

Supportive parenting in mothers, on the other hand, has been widely recognized as a significant factor in shaping child developmental outcomes (i.e., Neppl et al., 2020; Yamaoka & Bard, 2019). Consistent with previous research, we also found strong longitudinal connections between maternal supportive parenting and child externalizing behaviors (Boeldt et al., 2012). Instead of parents' self-reports of parenting practices, we constructed a composite variable based on two observational ratings of supportive parenting. Observational methods of parenting assessment are often viewed as more objective and reliable than parents' self-report of parenting (Hawes & Dadds, 2006). Importantly, accounting for children's earlier aggression, which is reported by parents, maternal supportive parenting was negatively associated with children's externalizing behaviors reported by teachers and delinquency reported by children themselves. Supportive parenting helps build a healthy parent-child relationship, forming children's security and developing social competence, thus effectively reducing child externalizing behaviors in the long run (Eisenberg et al., 2005; Harper et al., 2006). The fact that the effects of supportive parenting were not extended to parent reported externalizing behaviors may be due to the genetic predispositions that contribute to parent-reported aggression over time, independent of the influence of mother's supportive parenting, observed and rated by researchers.

Interestingly, we found that when children experienced less maternal supportive parenting, children who had been spanked at age 5 were reported by parents to have a significantly higher levels of externalizing behaviors in fifth grade than peers with no spanking experience at age 5, whereas when children experienced household spanking and a high level of maternal supportive parenting at age 5, they had a similar level of parent-reported externalizing behaviors in early adolescence as children with no spanking experience. This is consistent with prior studies that have found maternal warmth to be a protective factor in reducing externalizing behaviors in the face of spanking in non-low-income populations (Deater-Deckard et al., 2006; Lansford et al., 2014). Notably, our study did not identify who specifically administered the spanking behavior at home. The findings suggest that maternal supportive parenting may be particularly important to mitigate children's externalizing behaviors at home when the child experiences spanking in the household overall. However, the interaction effect between household spanking and maternal supportive parenting on children's behavioral problems was not extended to other social contexts such as school, suggesting that maternal supportive parenting does not mitigate the overall negative association between spanking and child behavioral problems across different contexts. This is likely that school-based behaviors are more likely to be influenced by school-related factors, such as teacher-child relationship and peer relationship, compared to parenting behaviors. (Silver et al., 2005; Sturaro et al., 2011).

To our knowledge, this is a pioneer study focusing on a low-income sample that have examined the buffering role of supportive parenting around the age 5 on reducing the detrimental impacts of spanking experience on externalizing behaviors in early adolescence. It is likely that the climate of supportive parenting at home may improve the parent-child relationships (Van IJzendoorn et al., 2023), and therefore children are more likely to internalize parents' discipline and moral norms (i.e., children understand that parents always love them and being spanked is for correcting their wrong behaviors), and thus reduce externalizing behaviors. Another possibility is that supportive parenting effectively buffers the negative influence of poverty/financial risks, which are associated with harsh discipline (Straus & Stewart, 1999), on children's social outcomes, thus reducing child externalizing behaviors. It is worth mentioning that Stacks et al. (2009) used the same EHSREP data and did not find a significant moderating role of maternal warmth for the impact of spanking in the early three years on parent-reported aggressive behaviors at age 3. The possible reason for the inconsistency between our findings could be that children around the age of 5, exhibiting more advanced cognitive abilities than in their early years, are more likely to understand the reasons behind parental spanking and its consequences more effectively. Mothers' supportive parenting at this age may play a more substantial role in moderating the relation between spanking and children's externalizing behaviors.

Implications

This study highlights both the long-lasting consequences of spanking and the importance of supportive parenting in children experiencing spanking in early childhood, especially in economically disadvantaged environments. The findings are clear that early spanking is associated with poorer behavioral outcomes in middle childhood. Supportive behaviors from mothers can be helpful for children who experience spanking. However, it is worth noting that the protective effect of supportive parenting was found only for parent-reported externalizing behaviors, but not for teacher-reported or self-reported externalizing behaviors. Again, given the strong negative impact of early spanking on children's externalizing behaviors, the buffering role of mothers' supportive parenting is limited. These findings along with previous research (Berlin et al., 2009; Gershoff, 2002; Gershoff et al., 2018) are clear that spanking is not a preferred way to discipline children and should be avoided. Low-income and resource-poor families have historically been more likely to use spanking as a form of discipline to correct children's behavior compared to higher-income and resource-rich families (Hines et al., 2022). Our findings provide further evidence that it is crucial and urgent to enhance parent education in low-income families and implement tailored interventions to reduce spanking.

Given these findings, there is a clear need to integrate parent education into existing support systems. One important avenue for such integration is through Early Head Start and Head Start programs, which play a vital role in supporting the development and wellbeing of low-income children and families. By building upon existing parenting education and support, efforts can be made to better promote supportive parenting and reduce the use of spanking, thus promoting economically disadvantaged children's positive development. Earlier impact analyses using this sample found that EHS effectively increased supportive parenting across the early childhood from age 2, 3 to age 5, while the EHS program only reduced parental spanking when children were at ages 2 and 3, but not sustained at age 5 (Love et al., 2013). These programs should continue to work on encouraging supportive parenting practices beyond the program and early childhood. In addition, all sectors of society, including educators, pediatrics, communities, policy makers and parents themselves should work together to curtail spanking and support parents in order to attain optimal outcomes for children.

Limitations and Future Directions

Although this study holds significant implications, a few limitations should be noted. First, the spanking experience was reported within a one-week time frame, although was common in literature, may not capture other formats of spanking, such as infrequent spanking (i.e., less than once a month, Kang, 2022) or repeated spanking (i.e., being spanked every week). Different formats of spanking may have different effects on child externalizing behaviors and show different levels of interaction with supportive parenting (Lansford et al., 2012). Second, although we used observation ratings to measure supportive parenting, parent reports of household spanking experience may be subject to bias, as parents may have underreported their use of spanking. The measure of spanking also did not specify who in the household spanked the child and considered it as a general spanking experience. Future studies may collect comprehensive information of children's spanking experience using diverse measures, such as direct observation or child report, to complement parent reports and investigate whether maternal supportive parenting would have different moderating effects toward the effects of maternal and paternal spanking on children problem behaviors, and whether the buffering effects of supportive parenting can be generalized to infrequent or repeated spanking. It would be helpful to use interviews to look into parents' attitudes toward and use of spanking, including remedial techniques (i.e., hugs, discussion, explanations, etc.) after the spanking behaviors, and how these factors lead to different child outcomes. It is also worth noting that although we tried to compare the behavioral outcomes across contexts based on different reporters, the reporting contents are slightly different in children self-report (delinquent behavior specifically) compared to parent and teacher reports (externalizing behavior in general). Thus, interpretations based on child reported behaviors should be cautious.

In addition, although this study controlled for a list of child/family confounding factors, there may be some unexamined factors that could influence the impacts of spanking and supportive parenting in child externalizing, such as family conflict, family violence, etc. It is valuable for future studies to examine how these family contexts may account for the utility of parenting practices and children's externalizing behaviors. It is also important to highlight that our sample consists of children from low-income, at-risk environments. It is possible that the findings here may not be generalized to children from more affluent families or backgrounds. Future studies would benefit from exploring the effectiveness of interventions that are designed to reduce the use of spanking and promote supportive parenting, especially on the economically at-risk children, to provide evidence-based strategies to improve child behavioral outcomes.

Conclusion

The current study provides evidence that for children living in economically at-risk environments, spanking experience in early childhood has a robust detrimental impact on early adolescent's externalizing behaviors across parent and child reports, though the effect sizes were small (see Fig. 1). Additionally, supportive parenting in mothers buffers the detrimental impact of spanking on later externalizing behaviors, reported by parents only. These findings highlight the importance of reducing spanking experience and improving supportive parenting in economically at-risk children for reducing children's problem behaviors, which needs the concert efforts from parents, policy makers, and community support.

Data Availability

The data is publicly available at the Henry A. Murray Research Archive and Child and Family Data Archive: https://www.childandfamilydataarchive.org/cfda/archives/cfda/studies/3804/summary.

Supplementary information The online version contains supplementary material available at https://doi.org/10.1007/s10826-025-03087-y.

Compliance with Ethical Standards

Conflict of Interest The authors declare no competing interests.

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