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The Relationship Between Parental Criminal History and Substance Use on Child Mental Health

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Title: The Relationship Between Parental Criminal History and Substance Use on Child Mental Health

By

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Abstract

Background: Since 1991, the number of children with incarcerated mothers has increased by 98% and those with incarcerated fathers has increased by 58%. Estimates from the National Survey of Children's Health suggest that more than 5.1 million children have had a parent incarcerated at some point. Parental incarceration and parental substance abuse can have broad negative impacts on children. Both are considered "adverse childhood experiences" that cause high levels of toxic stress and can lead to lasting harms, both psychologically and physically.

Objective: This research analyzes the relationship between two ACES – parental criminal history and parental substance use – on children's mental health outcomes, specifically, internalizing, externalizing, and adaptive behaviors among a sample of individuals who were in treatment at drug courts.

Methods: That study was conducted at four drug courts in the Atlanta region from 2013-2016, and used a quasi-experimental design involving four drug courts (two adult drug courts and two family treatment courts). As part of that study, families (i.e., a drug court client, their child, and a co-parents) were interviewed at baseline and up to three years following baseline. This analysis uses data from this study; only baseline data from the drug court clients were used.

Results: Parent criminal history was positively related to externalizing behavior indicating that parents with greater levels of criminal history reported children with more externalizing behaviors. Parental substance use did not predict externalizing behavior, internalizing behavior, or adaptive behaviors.

Discussion: This study indicates that the relationship between traumas experienced can be impacted by the child's age and gender. There are many social and contextual factors which are also at play when analyzing children's mental health symptoms. Nevertheless, parental incarceration, parental substance use, and other adverse childhood experiences should be considered when reviewing children's behaviors over time.

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Author's Statement Page

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Janhavi Dubhashi

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Introduction

Since 1991, the number of children with incarcerated mothers has increased by 98% and those with incarcerated fathers has increased by 58% (Mumola, 2000). The United States accounts for 4.3% of the global population, but for almost a quarter of the prisoners around the world (Walmsley, 2016). The Bureau of Justice Statistics found that in 2010 half of inmates were also parents (2010). Estimates from the National Survey of Children's Health suggest that more than 5.1 million children have had a parent incarcerated at some point (The Annie E. Casey Foundation, 2016).

One of the primary reasons adults are incarcerated in the U.S. are drug-related crimes. The policies that have criminalized drug use resulting from the "War on Drugs" (Moore & Elkavich, 2008) has led to an increase in incarceration for drug-related offences (National Center on Addiction and Substance Abuse, 2010). Since the War on Drugs began in the 1980s, the population of people who have been incarcerated for drug related offenses rose from 40,900 to 452,964 in 2017 (Criminal Justice Facts, n.d.). The policies impact not just those that have been directly incarcerated, but their families and their community (Wilbur et al., 2007). Estimates suggest that at least 12% of US children live in households where a parent has a substance abuse problem needing treatment (Office of Applied Studies, 2009).

Parental incarceration and parental substance abuse can have broad negative impacts on children. Both are considered "adverse childhood experiences" that cause high levels of toxic stress and can lead to lasting harms, both psychologically and physically. The goal of this research is to examine the relationship between parental incarceration and parental substance and child behavioral health among a sample of individuals who were in treatment at drug courts.

Adverse Childhood Experiences

Adverse Childhood Experiences (ACEs) are traumatic events experienced before the age of 18 that lead to "toxic stress" in a child. Toxic stress is excessive and often prolonged activation of the body's natural stress responses, and can be contrasted to a non-toxic or tolerable stress response (Toxic Stress, n.d.). Over time this culmination of toxic stress can lead to physiological disease, dysfunction, and early death (Felitti, 2002). There are many childhood experiences that can act as ACEs including child abuse, inter-parental violence, parental separation, and parent mental illness. Parental incarceration and parental substance use in the household have also been identified as examples of ACEs (Felitti, 2002). Generally, ACEs have been shown to have negative impacts on children; the number of ACEs experienced relates to negative health outcomes including psychological outcomes such as depression and substance abuse, and physical outcomes such as heart disease and diabetes (Toxic Stress, n.d.).

The inclusion of parental incarceration and/or parental substance abuse as an ACE and their relationship to other ACES has been well documented. For example, controlling for demographic variables, among children under six, parental incarceration was related to a 20% increase in experiencing other ACEs (Murphy & Cooper, 2015), and the risk of divorce or separation for married men is significantly higher when incarcerated (Western, 2006). Incarceration can be detrimental in and of itself, and it can lead to parents experiencing further disadvantage by way of low income and other economic consequences after release (Geller, Garfinkel, Cooper, & Mincy, 2009). Similarly, parental substance abuse is associated with increased risk for other ACEs (Anda, 2002). Children with parents who have a substance use disorder are more likely to have a lower socioeconomic status, increased difficulties in social/academic settings, and lower family functioning (Peleg-Oren & Teichman 2006). These

children are also at a greater risk for later behavioral and mental problems, which can lead to multigenerational cycles of abuse and neglect (Vincent & Wilson, 2016).

Parental Incarceration Impact on Children

More than 5 million children, or 7% of all United States children have had a parent incarcerated at some point in their lives (Murphey & Cooper, 2015) Children of color, especially Black and Hispanic children, have higher rates of parental incarceration than White children, and Black children experience the highest rates of parental incarceration (Mumola, 2000). National surveys show that the circumstances in which children experience their parent's criminality and incarceration vary (Turney, 2014). Experiencing their parent's arrests can also be traumatizing for children especially if they witness the event, which many do; in a study conducted in Arkansas, 40% of parents reported that their children had been present at their arrest (Harm & Phillips, 1998). There is often a lack of dependable, consistent, and intimate contact between a parent and their child if the parent is incarcerated. Telephone communication is costly, and the costs from collect calls often lead to challenges for families to continue the relationship between the incarcerated parent and the child (Braman, 2004). This contact is also limited by distance, as mothers are housed in prisons at an average of 160 miles from their children and fathers are an average distance of 100 miles away from their children (Hagan & Petty, 2002).

Regarding specific child outcomes, the link between parental incarceration and negative education outcomes for children has been seen as early as age three (Geller, Irwin, Cooper, and Mincy, 2009). Negative health outcomes such as depression, hypertension, obesity, asthma, migraines, high cholesterol, anxiety, and diabetes are particularly common in children of incarcerated parents (Green, Ensminger, Robertson, & Juon, 2006; Lee, Fang, & Luo, 2013; Turney, 2014; Wildeman, Andersen, Lee, & Karlson, 2014; Morsy & Rothstein, n.d.). Children

of parents who are incarcerated are more likely than their peers to be involved with abusing drugs and alcohol (Kemper & Rivara, 1993). As noted above, parental incarceration can confer other risk factors that can affect children such as low income, poor quality schools, living in unsafe neighborhoods, poor diets, and not receiving quality healthcare (Brooks-Gunn, Duncan, & Aber, 1997). Regarding educational outcomes, a study conducted in the Chicago Public Schools found that children with an incarcerated parent had lower standardized test scores than their peers who did not have an incarcerated parent (Cho, 2009). Children with incarcerated parents are more likely to have conduct disorders, delinquent behaviors (Murray & Murray, 2010), disruptive behaviors in the classroom (Dallaire, Ciccone, & Wilson, 2010), and boys who have grown up with an incarcerated father are more likely to engage in delinquent or antisocial behavior in their adolescence and adulthood when compared to their peers (Murray & Farrington, 2008). Children of incarcerated parents are also more likely to drop out of school, develop learning disabilities, misbehave in school (Morsy & Rothstein, n.d.), and are 33% more likely to have speech or language problems (Turney, 2014). Data from a nationally representative, 15-year longitudinal study (The National Longitudinal Study of Adolescent Health) has shown positive and significant associations between parental incarceration and children's mental health problems such as depression, anxiety, and post-traumatic stress disorder (PTSD) (Lee, Fang, & Luo, 2013). Swisher & Shaw-Smith's 2015 study measured the relationship between age of first parental incarceration and delinquency using the same data, and found that children under the age of 11 were associated with higher delinquency scores (Swisher & Shaw-Smith, 2015). There was an association between parental incarceration and elevated depressive symptoms in adolescence and young adulthood for children. The results were similar

for levels of anxiety and increased odds of suicidal ideation during young adulthood and adolescence (Khan, Scheidell, Rosen, Geller, & Brotman, 2018).

Parental Drug Use Impact on Children:

The economic burden to society of substance abuse has been estimated at $414 billion dollars per year (Harwood, Fountain, & Livermore 1998). Estimates suggest that over 8.3 million children live with at least one parent who is abusing drugs or alcohol (Substance Abuse and Mental Health Services Administration, 2009). Children of parents with substance use disorders are more likely to experience neglect and abuse (Peleg-Oren & Teichman, 2006), are more likely to use drugs themselves as adolescents (Kilpatrick et al., 2000) compared to children whose parents do not abuse drugs, are more likely to experience inadequate medical/dental care (Callaghan, Crimmins, Schweitzer, 2011), have educational delays (Callaghan, Crimmins, Schweitzer, 2011), and to be at greater risk for mental health and behavioral problems later in life (Johnson & Leff 1999). These mental health problems can include attention deficit hyperactivity disorder, depression, conduct disorder, oppositional defiant disorder, stress related disorders, and trauma (Kendler et al., 2013; Anda et al. 2002). Social, emotional, and behavioral difficulties can occur in the short term and develop into longer term complications (Murray, Farrington, & Sekol, 2012). Studies have shown that there are greater internalizing and externalizing symptoms in children who have alcohol dependent parents when compared to other children (Isidore & James, 2004).

Do child factors affect experiences of parental incarceration and substance abuse?

The way in which children manifest their emotions into problematic (e.g., internalizing, externalizing), or positive (adaptive) behaviors can depend on a litany of factors, some of which

have been examined in the literature. Two potentially important factors in determining children's reactions to parental incarceration and/or substance use are the child's gender and age.

Gender of the child and the parent can be important. For example, girls report higher internalization of symptoms and boys report higher externalization of behaviors after facing parental incarceration (Seymour 1998). Child age can also be important in determining how children react to parent's incarceration or substance use. Keiley et al showed that maltreatment prior to age five had higher internalizing symptoms in adulthood (Keiley, Howe, Dodge, Bates, & Pettit, 2001). Younger children are more susceptible to traumatic experiences, and the age at which the trauma occurs has the potential to influence the etiology of mental health problems (Barnett, Manly, Cicchetti, & 1993; Graham, Litrownik, Everson, Bangdiwala, & 2005). Other studies have shown that abuse or trauma experienced earlier in life, when compared to trauma experienced in adulthood, elevates risk for depressive symptoms and major depressive disorder (Dunn, McLaughlin, Slopen, Rosand, & Smoller, 2013; Maercker, Michael, Fehm, Becker, & Margraf, 2004; Chu, Williams, Harris, Bryant, & Gatt, 2013).

Research question and hypothesis

This research analyzes the relationship between two ACES – parental criminal history and parental substance use – on children's mental health outcomes, specifically, internalizing, externalizing, and adaptive behaviors. I also examined two variables – child age or child gender – as potential moderators of those effects. I hypothesized that parental incarceration and substance abuse will be positively related to internalizing and externalizing behaviors, and negatively related to adaptive behaviors. Regarding the moderators, I hypothesized that relationship between parental criminal history and substance abuse and child outcomes will be stronger for younger children. No specific hypothesis was made regarding child gender.

Methods

Source of Data

This study uses baseline data from a larger study whose focus was to form a partnership involving public and private partners from child welfare, mental health, the justice system, and University-based researchers to implement and evaluate evidence-based services to promote the health and well-being of children affected by parental substance abuse. That study was conducted at four drug courts in the Atlanta region from 2013-2016, and used a quasi-experimental design involving four drug courts (two adult drug courts and two family treatment courts). As part of that study, families (i.e., a drug court client, their child, and a co-parents) were interviewed at baseline and up to three years following baseline. This analysis uses data from this study; only baseline data from the drug court clients were used.

Participants

A total of 144 drug court clients were enrolled at baseline. To be eligible for the study: drug court clients must (1) have been actively enrolled in one of the included drug courts, and (2) must have been acting in a regular parenting role toward a child 0-18, and (3) must have completed the initial phase of drug court, typically a detoxification phase. We defined a 'regular parenting role' as someone who spends time with a child regularly and provides supervision or oversight; it was up to the client to determine if they met those criteria.

Clients answered questions about themselves and a child. When responding to questions about the child, if there were multiple children parented by the drug court client, the project focused on the youngest child who was at least eight years old as the focal child for the assessment. This criterion was set because (1) younger children would be most likely to show change as a result of the interventions, and (2) eight was the youngest age at which a child could

complete the child survey, and (3) by selecting the youngest child, we would maximize the number of years the child would be eligible for the study.

Procedure

Clients were approached through planned recruitment pitches organized between research coordinators and the court staff. The clients met Georgia State University research staff before or after a court session or mandatory event. The research team presented an overview of the study and requirements for participation. Clients were told that their participation was completely voluntary and they could end their participation at any time, and that none of the information they shared with the research team would be shared with the drug court. Clients were told that their input would be used to examine the success of drug and accountability courts are for parents with substance abuse issues.

Clients were screened for eligibility using a one-page form, on which they completed screening items and indicated their interest in participating. Clients who were eligible and interested were contacted for an appointment to conduct the assessment. Trained research assistants traveled to the participant's home or another location of the participant's choice to conduct the assessment. Prior to the assessment, clients were formally consented to participate in the study. The consent included consent regarding the assessment, and permission to link the client's records from drug court and state administrative databases to their survey data. The assessment for adults included an audio-computer assisted self-interview (ACASI), in which a standard battery of research scales was administered. Most participants wore headphones and questions were read to them by the computer, and they entered responses directly into the computer. This provides greater privacy than a face-to-face interview and reducing interviewer biases and participant self-presentation biases.

Measures

Demographic variables. Participants self-reported their age in years, total number of biological children, sex (responses were dichotomized into 'male' and 'female'), race (because of sample size, responses were dichotomized into 'non-white' and 'white'), education (responses were categorized into 'some high school,' 'high school graduate,' and 'some college'), employment status (responses were categorized into 'unemployed,' 'employed <30 hours,' and 'employed > 30 hours'), income level (responses were characterized into '<25K,' '25-35K,' '35-49K' and '>50K'), marital status (responses were dichotomized into 'non-married' and 'married'). Information was also collected on the child of the participants including child gender (responses were dichotomized into 'male' and 'female'), child age (responses were categorized into '0-5 years old,' '6-9 years old,' and '10+ years old'), child relation to the parent (responses were dichotomized into 'biological parent' and 'other relationship').

Parent criminal history and substance use. To measure parent substance use history and criminal history, the Level of Service Inventory-Revised (LSI-R) (Andrews & Bonta, 1995) was used. The LSI-R was not part of the assessment, but was completed by each of the courts upon the client's entry into the drug court program by drug court staff. LSI-R data was obtained and matched with the assessment data. The LSI-R is a broad based assessment tool comprised of 54 items across 10 subscales covering static and dynamic risk factors. The LSI-R has an overall risk score (0-54) as a profile of criminogenic needs and protective factors (Multi-Health Systems, n.d.). Two subscales from the LSI-R were used to measure criminal history and substance use disorders. The criminal history domain includes 10 items which are scored as one point each for a scale range for this sample was from 0 to 8. The substance use domain includes 9 items which are scored as one point for each with a range in this sample from 3 to 9. Questions for the

criminal history domain included: Any prior adult convictions? Two or more prior adult convictions? Three or more prior adult convictions? Three or more present offenses? Arrested under age 16? Ever incarcerated upon conviction? Escape history from a correctional facility? Ever punished for institutional misconduct? Charge laid or probation/parole suspended during prior community supervision? Official record of assault/violence? Questions for the substance use domain included: Alcohol problem, ever? Drug problem, ever? Alcohol problem, currently? Drug problem, currently? Law violations? Marital/family? School/Work? Medical? Other indicators of drug problem?

Child mental health outcomes. Aspects of the child's mental health were measured with the Behavior Assessment System Children-2 (BASC-2). The BASC-2 is a standardized and norm-referenced measure of social behaviors (Reynolds & Kamphaus, 1992) and measures adaptive and problem behaviors in children over two years old. Two types of problems behaviors were examined: *externalizing* behaviors including aggression, hyperactivity, and attention problems and *internalizing* behaviors including depression, anxiety, and withdrawal. *Adaptive* behaviors were also examined, and those include adaptability and social skills (Baillargeon et al., 2007). Clients answered age-specific questions about the target child. The responses were used to generate raw scores, which were used to generate t-scores for each child using age- and sex-specific norms from the BASC manual. These t-scores for the BASC composite scales for externalizing problems, internalizing problems, and adaptive skills were computed and are used as the primary dependent variables.

Analysis

I first computed descriptive statistics for the sample (Table 1) using means and standard deviations for continuous variables and frequencies and percentages for categorical variables. To

test the primary aims of the study, I conducted a series of used regression models with parental criminality or parental substance abuse as the primary independent variables and the three child mental health outcomes (externalizing, internalizing, and adaptive behaviors) as the dependent variables. All models included several control variables: child gender, child age, adult age, adult biological sex, adult race, adult marital status, adult education, adult employment status, adult income, the adult's total number of children, and the adult-child relationship. To test the moderator hypothesis that the impact of parent drug use and/or criminal history would vary by child age and/or child sex, we added interaction terms between each independent variable and a moderator to each regression model. Twelve additional models were conducted, each model testing one interaction generated by two independent variables (drug use, criminal behavior), two moderators (child sex and child gender) and three dependent variables (externalizing, internalizing, and adaptive behaviors). All statistical analyses were conducted using SAS 9.4.

Results

Table 1. Demographic variables for the sample

Variable		**N (%) or M (sd)**
Target Child's Gender:		
	Boys	70 (48.61%)
	Girls	74 (51.39%)
Parent Sex:		
	Male	67 (46.53%)
	Female	77 (53.47%)
Parent Race:		
	White	84 (58.33%)
	Non-White	60 (41.67%)
Child Age Categories		
	0-5	47 (32.64%)
	6-9	44 (30.56%)
	10+	53 (36.81%)
Parent Age		36.2 (8.3)
Parent Marital Status		
	Married or living with partner	63 (43.75%)
	Not married or living with partner	81 (56.25%)
Parental Education		
	Some High School	28 (19.44%)
	High School Graduate	46 (31.94%)
	Some College	70 (48.61%)
Parental Employment		
	Unemployed	16 (11.11%)
	<30 hours per week	49 (34.03%)
	30+ hours per week	79 (54.86%)
Parental Income		
	<25k	81 (59.12%)
	25-35k	23 (16.79%)
	35-49k	16 (11.68%)
	50k+	17 (12.41%)
Parent-Child Relationship		
	Biological Parent	118 (81.94%)
	Other Relationship	26 (18.06%)
Child Living with Parent		
	No	66 (53.23%)
	Yes	58 (46.77%)
Average # of Children		1.9 (1.17)
Parent criminal history		4.07 (2.12)
Parent drug use		6.41 (1.44)
Externalizing behaviors		51.32 (10.4)
Internalizing behaviors		48.90 (9.10)
Adaptive behaviors		47.8 (9.85)

Table 2. Regression models examining criminal history as a predictor of externalizing, internalizing, and adaptive behaviors.

Variable	Externalizing			Internalizing			Adaptive		
	Estimate	se	p	Estimate	se	p	Estimate	se	p
Intercept	49.52	8.89	<.01	49.92	7.73	<.0001	39.71	8.67	<.0001
Criminal History	1.25	0.55	0.02	0.15	0.47	0.75	-0.48	0.53	0.37
Child Gender									
male	-0.13	2.23	0.95	1.11	1.94	0.57	0.16	2.18	0.94
female (reference)									
Child Age									
0-5	-5.76	3.03	0.06	-3.28	2.63	0.22	8.19	2.95	0.01
6-9	1.74	2.87	0.54	-0.50	2.49	0.84	1.64	2.80	0.56
10+ (reference)									
Adult Age	-0.24	0.19	0.21	-0.24	0.16	0.15	0.25	0.18	0.17
Parent Sex									
male	-1.75	3.09	0.57	2.93	2.68	0.28	1.09	3.01	0.71
female (reference)									
Race									
non-white	-5.01	4.31	0.25	-7.48	3.75	0.05	-3.70	4.20	0.38
white (reference)									
Education									
Some HS	1.89	3.03	0.53	-1.10	2.63	0.68	-4.24	2.96	0.16
HS Grad	-0.01	2.53	1.0	0.56	2.20	0.80	-3.41	2.47	0.17
Some College (reference)									
Employment Status									
Unemployed	10.64	4.60	0.02	10.78	4.00	0.01	-1.28	4.49	0.78
Employed <30 hours	-1.51	2.73	0.58	0.75	2.37	0.75	2.18	2.66	0.42
Employed >30 hours (reference)									
Income									
<25K	-3.37	3.36	0.32	-3.00	2.92	0.31	3.42	3.27	0.30
25-35K	-4.54	3.95	0.25	-3.26	3.44	0.35	6.50	3.86	0.10
35-49K	-2.01	4.29	0.64	2.87	3.73	0.44	-0.54	4.19	0.90
>50K (reference)									
Child Relation to Parent									
Biological Parent	-5.80	3.02	0.06	-2.74	2.63	0.30	-0.06	2.95	0.98
Other (reference)									
Parent Marital Status									
Not-Married	2.22	2.41	0.36	1.62	2.09	0.44	-1.23	2.35	0.60
Married (reference)									
Total # kids	2.12	1.00	0.04	0.44	0.87	0.62	-1.34	0.98	0.18

Table 3: Regression models examining parent's substance use history as a predictor of externalizing, internalizing, and adaptive behaviors.

Variable	Externalizing			Internalizing			Adaptive		
	Estimate	se	p	Estimate	se	p	Estimate	se	p
Intercept	38.04	10.90	0.00	50.79	9.37	<.0001	50.24	10.36	<.0001
Drug & Alcohol Use	1.48	0.82	0.08	-0.12	0.71	0.86	-1.38	0.78	0.08
Child Gender									
male	-0.06	2.27	0.98	1.04	1.95	0.59	-0.08	2.15	0.97
female (reference)									
Child Age									
zero to five	-4.72	3.08	0.13	-3.29	2.65	0.22	7.42	2.93	0.01
six to nine	2.27	2.92	0.44	-0.57	2.51	0.82	1.06	2.78	0.70
10 and older (reference)									
Adult Age	-0.13	0.19	0.49	-0.23	0.16	0.16	0.20	0.18	0.25
Parent Sex									
male	-0.52	3.08	0.87	3.06	2.65	0.25	0.57	2.93	0.85
female (reference)									
Race									
non-white	-5.00	4.36	0.25	-7.46	3.75	0.05	3.66	4.15	0.38
white (reference)									
Education									
Some HS	2.24	3.06	0.47	-1.06	2.63	0.69	-4.37	2.91	0.14
HS Grad	0.03	2.56	0.99	0.68	2.20	0.76	-3.13	2.44	0.20
Some College (reference)									
Employment Status									
Unemployed	11.20	4.67	0.02	10.69	4.02	0.01	-1.91	4.44	0.67
Employed <30 hours	-1.76	2.77	0.53	0.78	2.38	0.75	2.42	2.63	0.36
Employed >30 hours (reference)									
Income									
<25K	-2.19	3.34	0.51	-2.79	2.87	0.33	3.15	3.17	0.32
25-35K	-3.82	3.98	0.34	-3.15	3.42	0.36	6.28	3.79	0.10
35-49K	-0.94	4.40	0.83	2.75	3.78	0.47	-1.63	4.18	0.70
>50K (reference)									
Child Relation to Parent									
Biological Parent	-5.67	3.06	0.07	-2.71	2.63	0.31	-0.05	2.91	0.99
Other (reference)									
Parent Marital Status									
Not-Married	0.58	2.44	0.81	1.57	2.09	0.46	-0.21	2.31	0.93
Married (reference)									
Total # kids	2.92	1.03	0.01	0.44	0.89	0.62	-1.88	0.98	0.06

Sample description

Table 1 shows a summary statistics sample for sample demographics. The sample was about half men and half women, and slightly more than half (58%) were white. Just under half were married, and the majority were high school graduates or had some college. Most were employed full or part time, but 59% had income of less than $25,000 per year. Children were evenly split across the three age categories. There was also an even distribution of boys (48.6%) and girls (51.4%). Slightly less than half (46.8%) of children lived with their parent, while a slight majority (53.2%) did not. A majority of the parents (81.94%) in the original study were biological parents of the children used in this study.

Primary Analysis

Table 2 shows a linear regression analysis of parental criminal history on internalizing, externalizing, and adaptive behaviors for children. Table 3 shows a linear regression analysis of parental substance use on internalizing, externalizing, and adaptive behaviors for children. All models controlled adjusted for child gender, child age, adult age, adult race, adult marital status, adult education level, adult employment status, adult income level, the total number of children each adult had, and the relationship between the child and the adult.

Parent criminal history was positively related to externalizing behavior (b = 1.25, se = 0.55, p = 0.02), indicating that parents with greater levels of criminal history reported children with more externalizing behaviors. The only other significant predictors of externalizing behaviors were being unemployed (b = 10.64) and number of children (b =2.12). Parent criminal history did not predict child internalizing behaviors; the only significant predictors of child internalizing behavior were adult race, with non-whites reported fewer internalizing behaviors (b = -7.48), and being unemployed, which was associated with greater internalizing

behaviors (*b* =10.78). Parent criminal history also did not predict child adaptive behaviors. The only significant predictor of child adaptive behaviors was child age such that parents of children ages 0-5 reported more adaptive behaviors than parents of children ages 10 and up (*b* = 8.19).

Parental substance use did not predict externalizing behavior (*b* = 1.48, *se* = 0.82, *p* = 0.08). The only significant predictors of externalizing behaviors were employment status and total number of children; being employed (*b* =11.2) and having more children (*b* = 2.92) were related to greater externalizing behaviors. Parent substance use did not predict child internalizing behaviors (*b* = -0.12). The only significant predictors of child internalizing behavior were employment status such that being unemployed was related to greater internalizing problems (*b* = 10.69). Parent substance use also did not predict child adaptive behaviors (*b* = -1.38). The only significant predictor of child adaptive behaviors was child age; parents of children ages 0-5 reported more adaptive behaviors than parents of children ages 10 and up (*b* = 8.19).

Moderation Analysis

To test whether the effect of parental criminal history or parental alcohol/other drugs usage on child outcomes was moderated by child age or gender, 12 separate regression models were run, each with an interaction term between one of the predictors (parent criminal history, parent drug use) and a moderator (child gender, child age) for each outcome (externalizing, internalizing, adaptive behaviors). Of the 12 interactions terms, 2 were significant: the relationship between criminal history and adaptive behaviors was moderated by gender (*p* = 0.04) and the relationship between substance use and adaptive behaviors was moderated by age (*p* = 0.04). More specifically, the relationship between parent criminal history and adaptive behaviors was null among boys (*b* = 0.61, *se* = 1.2, *p* = 0.6), but negative among girls (*b* = -1.31,

se = 0.63, *p* = 0.04). Parental substance use was negatively related to adaptive behaviors only among parents of children ages 6-9 (*b* = -3.7, *se* = 1.4, *p* = 0.02); it was unrelated among parents of children ages 0-5 (*b* = -3.0, *se* = 3, *p* = 0.34), and for parents of children ages 10 and over (*b* = 1.04, *se* = 1.40, *p* = 0.46).

Discussion

Overview of Findings

The goal of this paper was to examine how child age and gender could impact internalizing, externalizing, and adaptive behavioral outcomes based off of parental criminality and substance abuse. Parental criminal history was unrelated to internalizing behaviors or adaptive behaviors, and parental substance use was unrelated to all three of the child outcomes. We found that parental criminal history was related to greater levels of externalizing behaviors in their children, even when controlling for demographic risk.

We found two moderated relationships. Greater parent criminality was related to lower adaptive behaviors but only for girls, and not boys. Parental substance abuse was related to lower adaptive behaviors, but only among children ages 6-9, and not among younger or older children.

Fit of Findings with Other Research

Other studies have found that children of incarcerated parents are at an increased risk for internalizing and externalizing symptoms (Johnson, 2009; Murray, Farrington, Sekol, & Olsen, 2009). Studies have also found that children of parents with alcohol and drug use disorders are at an increased risk for internalizing (Bornovalova, Hicks, Iacono, & McGue, 2010; Marmorstein, Iacono, & McGue 2009) and externalizing symptoms (Eiden, Edwards, & Leonard, 2007). However, this study found largely null results, and it is unclear why. Considering the sample included here are individuals with a strong history of substance use problems (hence their involvement in drug courts), this is one possible reason for the lack of correlation. That is, there may be limited variability in substance use behaviors that could relate to child outcomes.

Limitations

There are several limitation of this research. First, we were able to examine only three child outcomes. Other outcomes, such as child trauma symptoms, may be impacted by parental substance use and criminality. Though the study assessed trauma symptoms directly from the children in the study, there were too few children who participated in the surveys to conduct the appropriate analyses. Another limitation is that we did not assess for the presence of many other ACES such as parental mental illness, divorce, and domestic violence, and those may have also impacted child behavior. Finally, the measure of both criminal behavior and substance use were broad and left out many important aspects that may affect the relationship to child outcomes. For example, the parental criminal history did not include an assessment of when crimes were committed (the child may not have been born) and whether the child witnessed an arrest, or was separated from the parent. Similarly, questions regarding parental substance abuse also did not include time of heavy substance use and if/when children were subject to experiencing their parents use. A final limitation was that the aspects of the relationship between the parent and the child that could have affected outcomes were uncontrolled. In spite of these limitations, this current study is unique in its use of moderating for both age and gender during analysis of child behavior for children impacted by parental criminal history or parental drug abuse.

Implications for Future Research

Future studies may well examine parental incarceration and substance use disorder on children's trauma symptoms. Future studies should also examine the longitudinal relationships existing between parental substance use and parental incarceration, and how the mental health of children of these adults is impacted. Future studies should also take into account how many other

ACEs the child has experienced, as children of incarcerated parents and substance abusing parents are at risk for other ACEs.

Implications for Practice/Policy

By further understanding the relationship between these variables, we can focus on the development of interventions and policies which specifically and effectively target both the children and parents. Having a parent incarcerated is a loss that often times is not socially approved or supported, which can add to a child's pain and grief and lead to problem behaviors (Arditti 2012). The Children with Incarcerated Parents (CIP) Initiative is an example of the type of multi-agency required to provide support to children who are experiencing parental incarceration through using data and knowledge to inform public policy and practice (Kjellstrand, Reinke, & Eddy, 2018).

Another issue that must be addressed is that of racial disparities. Black adults are incarcerated at a rate nearly six times the rate of White adults (Sakala 2014). These racially disparate outcomes (Balko, R. 2018) are represented with findings that show 50% of Black children experience parental incarceration when compared with just 4% of White children (Turney, 2017). Thus it is important to understand whether there is any differential impact of that incarceration, given the disparities in the level of incarceration. It is important to ensure that interventions and resources are available for children who are disproportionately impacted by the criminal justice system.

Conclusion

With a rise over fewer than 40 years from 200,000 prisoners to 2.2 million in the United States (National Research Council, 2014), it is imperative that more research is done to look at the children of these adults. Child experiences occurring in the early years are indicators of

children's mental health outcomes as they develop and age. Research has increasingly shown that children are negatively impacted by parental incarceration and parental substance abuse, especially children's mental health and behaviors. This study indicates that the relationship between traumas experienced can be impacted by the child's age and gender. There are many social and contextual factors which are also at play when analyzing children's mental health symptoms. Nevertheless, parental incarceration, parental substance use, and other adverse childhood experiences should be considered when reviewing children's behaviors over time.

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