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Children of incarcerated parents: Development of externalizing behaviors across adolescence

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ABSTRACT

Increasingly, "children of incarcerated parents" is becoming the label to describe a growing number of children with a history of parental incarceration. However, while these children and families frequently experience a variety of challenges, the web of interacting influences they face is complex. This variation makes it difficult to understand the effects of parental incarceration on children over time as well as to find solutions that help promote positive youth development for children impacted by parental incarceration. The current study uses latent growth curve (LGC) modeling to examine if parental incarceration during childhood predicts a higher initial level of externalizing behaviors by children in late childhood as well as the persistence and growth of these behaviors across adolescence. The analyses controlled for the influence of covariates that research has demonstrated are predictive of externalizing behaviors, including SES, gender, academic achievement, parental depression, and parent-child relationship quality. When controlling for the covariates, parental incarceration was not significantly related to child externalizing behaviors at baseline. However, parental incarceration was the sole predictor of an increase in externalizing problems over time. Implications for practice and research are discussed.

1. Introduction

Since 1970, the number of incarcerated adults in the U.S. has grown dramatically, increasing from approximately 357,000 individuals in 1970 (Cahalan & Parsons, 1986) to over 2.1 million in local, state, and federal institutions in 2016 (Kaeble & Cowhig, 2018). Paralleling this trend is the rapidly increasing population of children with incarcerated parents, which on any given day consists of at least 2.6 million minor children, or roughly 4% of all minors in the U.S. (Sykes & Pettit, 2014). Absent from this figure are the millions more children who have experienced parental incarcerated over their lifetime (Murphey & Cooper, 2015; Western & Wildeman, 2009).

A growing literature demonstrates specific risks, challenges and outcomes that these children can face both in the short and long term (Eddy & Poehlmann, 2010a; Eddy & Poehlmann, 2018; Wildeman, Haskins, & Poehlmann-Tynan, 2018). The so-called "collateral" damage that parental incarceration can have on children is gaining attention, concern, and response across multiple arenas. For example, in recent years on the federal level, the White House introduced a multi-agency Children of Incarcerated Parents Initiative to develop ways to support children experiencing parental incarceration. In the popular media, for the first time, the long running television show "Sesame Street" introduced a character with an incarcerated father, and developed resource kits for families to encourage discussion. Multiple advocacy groups and service organizations have been launched to support children and families with loved ones involved in adult corrections.

Increasingly, "children of incarcerated parents" is becoming the label used to refer to children with a parent in jail or prison, or who have experienced parental incarceration in the past. Research on children of incarcerated parents suggests these girls and boys may be at elevated risk for multiple and linked problems, including mental health difficulties, substance abuse, academic failure, and externalizing behaviors (e.g., Geller, Cooper, Garfinkel, Schwartz-Soicher, & Mincy, 2012; Hagan & Foster, 2012; Haskins, 2017; Kjellstrand & Eddy, 2011a; Murray, Farrington, & Sekol, 2012; Phillips, Burns, Wagner, Kramer, & Robbins, 2002). Notably, parental incarceration is rarely the start of challenges for a child and family, but rather an extension of difficult family circumstances characterized by such problems as poverty, criminality, substance abuse, and mental health issues (e.g., Kjellstrand & Eddy, 2011a; Poehlmann, 2005). The cumulative effect of these risks

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can increase the likelihood of negative outcomes for the children (Dallaire, 2007; Kjellstrand, 2011a). While these children and families often experience difficulties, the web of interacting strengths, challenges, and influences they face at the individual, family, and community levels defies uniformity (e.g., Hagan & Foster, 2015; Kjellstrand, Cearley, Eddy, Foney, & Martinez, 2012; Mutfic & Smith, 2018; Sugie, 2012). The variation between and among families makes it challenging to understand the effects that parental incarceration can have on children as well as to find solutions that help promote positive youth development for children impacted by parental incarceration.

Of all the potential problematic outcomes for children, externalizing problems – covert and overt antisocial behaviors (e.g., aggressive, hyperactive, disruptive behaviors) for which children of incarcerated parents appear to be most at risk – have received perhaps the greatest attention thus far (Murray et al., 2012; Turney, 2017; Turney & Wildeman, 2015). A meta-analysis which examined the most rigorous studies found that children with a history of parental incarceration were nearly one and a half times more likely to display externalizing behaviors as children without incarcerated parents (Murray et al., 2012). This elevated risk persists even when controlling for other established risks for these types of behaviors (e.g., low SES, family conflict).

While the existence of some level of risk is well established, statements about the level of risk have frequently gone beyond the existing data. For example, one of the most common statements in the popular press about this population is that the children of incarcerated parents are “six times more likely” than their peers to be incarcerated as adults. Just last week this appeared again in the local paper of two of the authors (e.g., Adams-Ockrassa, 2018). As has been noted numerous times in the literature in the past (e.g., Eddy & Poehlmann, 2010b; Murray & Farrington, 2005; Myers, Smarsh, Amlund-Hagen, & Kennon, 1999) and remains true today, there is *no* evidence that has been presented in the peer reviewed literature to support this estimate (see Conway & Jones, 2015). Rigorous longitudinal studies are clearly needed.

In light of the established connection of externalizing behaviors to future delinquency and crime for children overall (e.g., Reid, Patterson, & Snyder, 2002), understanding the growth and persistence of externalizing over time; examining what factors minimize, maintain or elevate problems; and assessing how these growth patterns of externalizing problems are related to adult outcomes, are all critical pieces of information to know in order to develop appropriate intervention strategies for preventing intergenerational cycles of crime within families. This study seeks to answer some of these questions about externalizing behaviors as they relate to the children of incarcerated parents. Specifically, the study examines the impact of parental incarceration from late childhood across adolescence. Using latent growth curve (LGC) modeling, we examine if parental incarceration during childhood predicts a higher initial level of externalizing behaviors in late childhood (i.e., ages 10 and 11 years) as well as the persistence and growth of these behaviors across adolescence. The analyses control for the influence of covariates that past research has demonstrated is important in the development of externalizing behaviors.

2. Background

2.1. Developmental Theories and Research

Developmental research over the past several decades has demonstrated that experiencing one risk factor, such as having an incarcerated parent, does not necessarily destine a child to a life of troubles. Rather, the type, intensity, number, and combination both of risk and of protective factors are key to a child's development. Various theories and models have been introduced to explain the complex processes through which behavior patterns develop in children and help explain the growth of behaviors across childhood and adolescence. Each theory offers insight into potential mechanisms through which parental incarceration might impact child behaviors.

The ecological perspective (Brofenbrenner, 1979, 1986) highlights the broad contextual influences that could be affecting a child. It focuses on person-environment relationships and sees individuals embedded in a larger hierarchically nested set of systems or environments such as the family, schools, community, and society. The model suggests that developmental outcomes for the child are influenced by many factors within these environments, and that one cannot reliably predict the future of an individual without knowing something about the context that surrounds the individual. Further, a developmental outcome at a later point in time is a function of the developing individual, characteristics and interactions with the immediate environments of the child, as well as the length and frequency of the exposure of these interactions. Given the frequent complexity of challenges facing families experiencing parental incarceration, this perspective provides a helpful framework for thinking about the impact that contextual factors have on the development of children in these families.

Risk and protective theories (e.g., Gutman, Sameroff, & Cole, 2003; Rutter et al., 1997) highlight the specific risks and risk processes that might be occurring within the different environments delineated in the ecological framework. According to these theories, exposure to risk increases a child's likelihood of negative outcomes while exposure to protective factors increases a child's likelihood of positive outcomes. Cumulative risk models examine the combination of risks (Rutter, 1985; Sameroff, Bartko, Baldwin, Baldwin, & Seifer, 1998). Multiple risks increase a child's likelihood of developing negative outcomes (e.g., Farrington, Jolliffe, Loeber, Stouthamer-Loeber, & Kalb, 2001; Poehlmann, 2005). For externalizing behaviors, risk factors such as low socioeconomic status (SES), low academic achievement, parental depression, and various family adversities have been linked to the emergence and continuation of these problematic behaviors (e.g., Eddy & Chamberlain, 2000; Goodman et al., 2011; Knutson, Degarmo, & Reid, 2004; Letourneau, Duffett-Leger, Levac, Watson, & Young-Morris, 2013; Moffitt, Caspi, Harrington, & Milne, 2002; Patterson, Debaryshe, & Ramsey, 1989). Most children of incarcerated parents experience at least one of these risk factors (e.g., James & Glaze, 2006; Kjellstrand & Eddy, 2011a; Mumola, 2000; Myers et al., 1999; Poehlmann, 2005). Over 60% of all children of incarcerated parents experience four or more of these major risk factors (Poehlmann, 2005). Not only do children frequently face challenges within the families, but having an incarcerated parent can be stigmatizing (Boswell & Wedge, 2002; Braman, 2004). Children can feel judged by classmates, teachers, neighbors, and others in the community, which can lead to bullying and teasing. These experiences can also contribute to the development of problem behavior like externalizing for some children (Murray, 2007; Phillips & Gates, 2011). The combination of all these risks along with co-occurring community level risk (e.g., neighborhood disadvantage, under-funded schools, community criminality) can put children of incarcerated parents at a higher risk for developing externalizing behaviors.

Lastly, Patterson's Social Interaction Theory (1989), provides further insight in the development of externalizing behaviors in children of incarcerated parents. The theory focuses specifically on the child/family relationships and suggests that over time, children and their families mutually influence each other through their continual interaction. Through this process, children's behaviors (prosocial and antisocial) are learned, strengthened, and maintained. Early in a child's development, risk factors (e.g., social and economic stress, parental mental health) influence child development to the degree that they affect parenting and family functioning. In later years, other individuals such as peers, teachers, and significant adults can influence the youth's behavior, yet parents and primary caregivers remain influential through their monitoring, supervision, and responses to the day-to-day activities of a youth. Unfortunately, parental incarceration can result in additional stress and challenges for the family. During incarceration,

families may experience not only emotional stress of having a parent incarcerated but also economic strain through both the lost income or child support of the incarcerated parent and the increased incarceration costs such as costs for phone calls, letter, and visits (Arditti, Lambert-Shute, & Joest, 2003). Once released, ex-offenders find themselves facing additional challenges in securing employment, pursuing educational opportunities, and finding housing due to their felony. With the additional family stress, the children can experience more problematic parenting practices (i.e., harsh and inconsistent parenting, lack of monitoring) and spend more time with deviant peers (Braman & Wood, 2003; Eddy & Reid, 2003; Hagan & Dinovitzer, 1999; Huebner & Gustafson, 2007; Kjellstrand & Eddy, 2011a, 2011b; Murray & Farrington, 2005). Even in families that are functioning well, by virtue of past parental criminality and the family and community challenges that many children of incarcerated parents face, the children are not only more likely to come into contact with deviant peers and adults, but also witness or experience criminal activity and violence. With the weakening of parental and family influence across adolescence, these negative contextual challenges can result in behaviors that are more problematic including externalizing behaviors.

2.2. Additional findings from longitudinal studies

Advances in statistical methodology have led to an increase in studies focused on longitudinal patterns in the growth of behaviors across childhood including externalizing behaviors. LGC modeling, as one such technique, facilitates the analysis of change of behaviors of interest over time. Of special interest in these analyses are the initial levels of behaviors and the differences in growth of the behaviors based on specific participant characteristics. This technique has been used to examine predictors of externalizing behaviors across time and heightened risk for adult outcomes (Fearon & Belsky, 2011; Petras et al., 2004). Similar to earlier research, findings from LGC analyses suggest comparable relations between previously identified risk and protective factors, externalizing behaviors, and long term problematic outcomes (Fearon & Belsky, 2011; Olson et al., 2013; Petras et al., 2004). For example, Fearon and Belsky (2011) found that poor child attachment, gender (male) and higher levels of family social-contextual risk (i.e., single parenthood, economic/education risk, teen pregnancy) are associated with externalizing problems at least up through early adolescence. Petras et al. (2004) demonstrated that low academic achievement, poor parental monitoring, and low SES were related to membership in more problematic externalizing trajectories, which in turn were related to symptoms of antisocial personality disorder and arrest by police during young adulthood.

2.3. Goals of current study

While research focused on the growth of externalizing behaviors is increasing, few studies have explored the role of parental incarceration in predicting growth of this problematic set of behaviors. Such information will help to advance the knowledge base about children of incarcerated parents, and help inform the development of future preventive interventions. In the current study, we examine if parental incarceration during childhood predicts a higher initial level of externalizing behaviors of children in late childhood (i.e., ages 10 to 11 years) as well as the persistence and growth of these behaviors across adolescence, when controlling for established covariates (i.e., the quality of the parent-child relationship, parental depression, academic achievement, SES, and gender). Based on past research, we hypothesize that youth who have experienced parental incarceration during childhood will have elevated externalizing behaviors at baseline based on their likely exposure to multiple risks. We also hypothesize that there will be an increasing rate of externalizing across adolescence as risks accumulate and positive family influences diminish.

3. Methods

3.1. Data

Data from the Linking Interests of Families and Teachers (LIFT; Eddy, Reid, Stoolmiller, & Fetrow, 2003; Reid, Eddy, Fetrow, & Stoolmiller, 1999) were used to test the hypothesized model. LIFT was a school-based preventive intervention trial, which began in 1991 and followed children as they grew into adulthood. The study focused on children from “at risk” neighborhoods in the Eugene-Springfield metropolitan area of Oregon. Neighborhood risk was defined by a locally elevated rate (top 50% in local area) of police contact with juveniles due to suspected delinquent behavior (for details, see Reid et al., 1999).

3.2. Participants

A total of 361 fifth grade students and their families were recruited from 12 randomly chosen local elementary schools. The participants reflected the local demographics of the identified neighborhoods at the time of study recruitment, namely residents from the lower to middle socioeconomic classes, most of whom were White (Eddy, Reid, & Fetrow, 2000; Reid et al., 1999). Approximately half of the target youth were girls (n = 175) and half were boys (n = 186). Assessments were completed during the fall of fifth grade (i.e., the original, “baseline” assessment), and the spring of fifth, sixth, seventh, eighth, and tenth grades (from ages 10 to 16 years). Because some participating schools combined fourth and fifth graders into one class, some “fifth grade” assessments were conducted with participants who were actually in the fourth grade year. In earlier research (Reinke, Eddy, Dishion, & Reid, 2012), LIFT group assignment was not associated with significant differences in externalizing problems during the period of interest.

3.3. Measures

3.3.1. Externalizing behaviors

Child externalizing behaviors were assessed six times (fall of grade 5, and springs of 5th, 6th, 7th, 8th, and 10th grades) using the externalizing subscale of the Child Behavior Checklist (CBCL; Achenbach, 1991). Parents rated their child on 30 behaviors (e.g., “argues a lot”, “is stubborn”, “destroys things”, “physically attacks people”, “steals outside the home”, “threatens people”) using a 3-point scale (0 = *not true*, 1 = *somewhat/sometimes true*, 2 = *very or often true*). The Cronbach's alphas at different time points were comparable to those in the original normative sample (i.e., 0.80 to 0.90).

3.3.2. Parental incarceration

Parental incarceration was based on information from two sources of data: information from official records from the county and state correctional department, and youth reports (when the youth were in their early 20's) of past criminality of their parents (Oregon Social Learning Center (OSLC), 1990a, 1990b). The dichotomous variable indicates whether a parent had been in jail or prison for at least one day at any time when the child was ten years old or younger. This conceptualization of incarceration as well as specific age range was chosen to map on to the work of Murray and Farrington (2005) who reported on one of the largest longitudinal studies examining the development of youth who have experienced parental incarceration. Very few such studies exist. In the LIFT sample, 32 youth (8.9%) in the study had at least one parent who had been incarcerated during their first 10 years: six of the children had only a mother who had been incarcerated, twenty-four had only a father who had been incarcerated, and two had both a mother and a father who had been incarcerated. This variable was coded as “1” for parents who had been incarcerated and “0” for those who had never been incarcerated.

3.3.3. Social economic status (SES)

Hollingshead's (1975) Four Factor Index of Social Status was used to calculate the family's SES, which was based on the custodial parents' education and occupational level. Parent's contribution to the family's SES was calculated from the occupation and education codes. These were correlated $r = 0.42$ for mothers and $r = 0.38$ for fathers, $p < .001$. The final factor was a mean of the parents' individual SES as assessed at baseline which were correlated, $r = 0.28$, $p < .001$.

3.3.4. Academic achievement

Academic achievement was based on the teacher's rating of the student's academic achievement in terms of reading, writing, math, and spelling at each time point (1 = *failing* to 4 = *above average*). If three of the four items were present, the mean of these items was calculated to form a teacher indicator of academic achievement at baseline Cronbach's alpha for this scale was 0.86.

3.3.5. Parent/child relationship

The parent-child relationship was assessed through parents' responses to questions on the Parent Interview (Oregon Social Learning Center (OSLC), 1990a, 1990b) at baseline and was based on two 5-point Likert scaled questions. Parents rated how well they got along with the child (from 1 = *not well* to 5 = *very well*) and how enjoyable were the activities with the child (1 = *not enjoyable*, to 5 = *very enjoyable*). These two items were correlated, $r = 0.52$, $p < .01$ for mothers, and $r = 0.52$, $p < .01$ for fathers. The final score used a mean response from the two questions. The parents' scores were not significantly correlated. However, the mean score from the parents' reports was used to capture the average effect. Cronbach's alpha was 0.62.

3.3.6. Parent depression

Each parent's level of depression was assessed using the Center for Epidemiological Studies Depression Scale (CES-D scale). The CES-D scale (Radloff, 1977) is a self-reported, 20-item measure, which focuses on feelings and symptoms of depression (e.g., respondents were bothered by things, felt like life was a failure). The mother's and father's scores were correlated, $r = 0.15$, $p < .05$. The final score was a mean response of the parents' level of depression at baseline. The mean score from the parents' reports was used to capture the average effect. Cronbach's alpha for this scale was 0.85.

3.4. Analytic strategy

LGC models were estimated using Mplus version 7.11 (Muthén & Muthén, 2013). LGC is a longitudinal analytic technique to estimate growth over a period of time. LGC models represent the same participants being observed over time and on the same measure at known times, allowing for the relative standing of each individual in the sample to be modeled as a function of an underlying growth process. The initial standing of an individual (intercept) and growth on the longitudinal variable (slope) are of interest in relation to other measures. In this study, time was treated as a fixed parameter in the models. The time weights were based on the timing of assessment sessions: fall of 5th grade was fixed at 0, spring of 5th grade at 0.5, 6th grade at 1.5, 7th grade at 2.5, etc. All analyses used automated multiple starting values in the optimization to reduce the risk that solutions represented local optima. Models were considered acceptable if both the comparative fit index (CFI) and Tucker-Lewis index (TLI) were greater than 0.9. Consistent with McDonald and Ho (2002), a model was regarded as having "good" or "acceptable" fit if the root mean square error of approximation (RMSEA) was less than 0.05 or less than 0.08, respectively.

The unconditional LGC model (without predictors) was estimated first. The conditional LGC model was then fit by including predictors measured at baseline. Intervention status, although not a significant predictor, was retained in the model to account for any variance explained by children receiving the intervention. Models utilized full information maximum likelihood (FIML) estimation, which uses all available data for each case, under the assumption that data were missing at random; this means the reason for the missing data is either random or random after incorporating other variables measured in the study (Arbuckle, 1996; Little & Rubin, 1989). FIML is a widely accepted approach to handling missing data (Muthén & Shedden, 1999; Schafer & Graham, 2002).

Overall, the percentage of youth in the sample who had missing data were as follows for externalizing behaviors: missing 1 to 2 time points (17.4%), 3 to 4 time points (8.6%), and 5 or more time points (9.9%). Youth with complete information on three or more of the time points did not significantly differ from youth who did not on baseline externalizing behaviors ($p > .05$). For the analyses in this study, Mplus based its estimates on all available data and did not use listwise deletion. To assess the extent of missing data, Mplus provides a bivariate covariance "coverage" matrix that gives the proportion of available observations for each indicator variable and pairs of variables, respectively. The minimum coverage necessary for models to converge is 0.10 (Muthén & Muthén, 2010). In the present study, coverage ranged from 0.75 to 1.00, more than adequate for unbiased estimation.

4. Results

Table 1 provides the descriptive statistics for covariates and across all waves of externalizing behaviors. Unconditional LGC models were first fit for externalizing problems to determine the shape of the trajectories and variances in the growth factors. Including a linear slope parameter (but not a quadratic term) significantly improved the fit over that of the intercept-only model, $\chi^2 = 56.14$ (16), $p < .01$; CFI = 0.98, TLI = 0.98, RMSEA = 0.05. Table 2 provides parameter estimates for the growth factors. The slope factor mean was not significant, indicating little systematic change in externalizing behaviors on average over time; however, the slope variance was significant, indicating individual differences in change over time.

Based on the fit of the unconditional model, the conditional LGC model was estimated by regressing the externalizing behavior growth factors on the baseline predictors. Model fit for the final model was excellent, $\chi^2 = 104.14$ (44), $p < .001$; CFI = 0.97, TLI = 0.96, RMSEA = 0.07. As shown in Table 3, gender (being male) was significantly related to the intercept ($B = 0.28$, $p < .01$), indicating that boys had higher average externalizing behaviors at baseline than girls. Family SES ($B = -0.01$, $p < .05$) and parental depressive symptoms at baseline ($B = 0.41$, $p < .001$) also were significantly related to the externalizing behavior intercept, indicating that lower SES and higher parental depression were associated with higher externalizing problems at baseline. In addition, lower academic achievement ($B = -0.24$, $p < .001$) and poorer parent/child relationships ($B = -0.52$, $p < .001$) were significantly related to higher externalizing problems at baseline. Parental incarceration was not significantly related to child

Table 1
Descriptive statistics for measures in study.

% Boys	51	
% Incarcerated	09	
	Mean	SD
SES	35.34	10.44
Academic achievement	3.37	0.84
Parent-child relationship	4.41	0.54
Mean parent depression score	0.00	0.91
Externalizing 5th grade fall	8.83	7.57
Externalizing 5th grade spring	7.69	7.29
Externalizing 6th grade spring	8.17	8.48
Externalizing 7th grade spring	7.68	7.65
Externalizing 8th grade spring	7.68	7.65
Externalizing 10th grade spring	7.46	8.87

Note: Covariates were measured in fall of 5th grade.

Table 2
Parameter estimates for unconditional latent growth curve model.

Parameter	*B (SE)*
Intercept mean	8.05 (0.39)***
Slope mean	0.00 (0.07)**
Intercept variance	43.52 (3.85)***
Slope variance	0.67 (0.15)***
Intercept-slope correlation	0.17*

* $p < .05$.
** $p < .01$.
*** $p < .001$.

Table 3
Results of variables predicting externalizing problems.

Externalizing problems	Intercept	Slope
Predictor variables	*B (SE)*	*B (SE)*
Boys	0.28 (0.09)**	−0.02 (0.18)
SES	−0.01 (0.01)*	0.10 (0.01)
Academic achievement	−0.24 (0.06)***	0.06 (0.11)
Parent/child relationship	−0.52 (0.09)***	−0.10 (0.17)
Parental depression	0.41 (0.05)***	−0.16 (0.10)
Parental incarceration	0.03 (0.18)	0.70 (0.32)*
Intervention group	−0.13 (0.10)	0.18 (0.18)

* $p < .05$.
** $p < .01$.
*** $p < .001$.

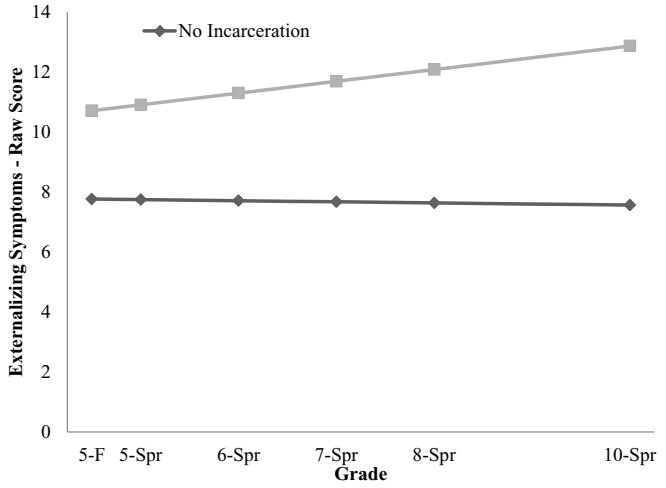

Fig. 1. Externalizing problems growth trajectories of children of incarcerated parents versus children without incarcerated parents controlling for covariates.

externalizing problems at baseline. However, parental incarceration was the only significant predictor in the model of the slope ($B = 0.70$, $p < .05$), indicating that youth of parents who had been incarcerated demonstrated an increase in externalizing problems over time compared to youth of parents who had not been incarcerated (See Fig. 1).

5. Discussion

The present study sought to answer questions related to the incidence and growth of externalizing behaviors in children of incarcerated parents. Using LGC models, the study examined the differences in externalizing behaviors from late childhood across adolescence for children of incarcerated parents versus children who had not experienced parental incarceration. The analyses controlled for various covariates that are known to be influential in the development of externalizing behaviors including academic achievement, parent-child relationship, parental depression, SES, gender.

Research has consistently documented the connections between SES, gender, ineffective parenting, and child externalizing behaviors (e.g., Eddy & Chamberlain, 2000; Goodman et al., 2011; Knutson et al., 2004; Letourneau et al., 2013; Moffitt et al., 2002; Patterson et al., 1989). This study demonstrated these connections as well during late childhood (when the children were 10 and 11 years). Interestingly, when controlling for these common predictors of externalizing behavior, parental incarceration was not related to initial levels of the behavior. While this result was different from hypothesized, upon closer examination, this finding is consistent with several studies focusing specifically on externalizing in younger children of incarcerated parents (Kinner, Alati, Najman, & Williams, 2007; Murray & Farrington, 2005). These studies revealed that when taking into account other key risk factors, the relationship between children externalizing and parental incarceration is not significant prior to the adolescent period. Rather, at that point in time, it was the broader psychosocial risks such as parenting and family dynamics that account for poor youth functioning, as suggested by Patterson's Social Interaction Theory (1989).

While parental incarceration was not related to child externalizing at baseline, it was related to growth of these behaviors across adolescence. In fact, controlling for all other baseline predictors, of the predictors that were examined here, only parental incarceration predicted growth in externalizing over time. This finding is more in line with the majority of findings from research on children of incarcerated parents, which has demonstrated an elevated rate of externalizing behaviors for children of incarcerated parents (Huebner & Gustafson, 2007; Murray et al., 2012; Phillips et al., 2002).

The combined results point to several possible scenarios. One possibility is that children of incarcerated parents are experiencing an increasing number of risks over time that accumulate and, consistent with risk theories and cumulative risk models (e.g., Gutman et al., 2003; Rutter et al., 1997; Sameroff et al., 1998), lead to elevated levels of problem behaviors. Research has shown that the presence of multiple risk factors increases a child's likelihood of developing problems including aggression, substance abuse, and delinquent behavior (Dallaire, 2007; Farrington et al., 2001; Poehlmann, 2005; Yoshikawa, 1994). Not only are a majority of children of incarcerated parents exposed to multiple risks (Poehlmann, 2005), but risk can beget exposure to more risk. For instance, the additional stigma and associated bullying, teasing, and prejudice that can ensue for children due to their parent's incarceration, can add another layer of risk to an already fragile situation. For some participants in this sample, this accumulation of multiple risks over time might have resulted in growth in externalizing behaviors during adolescence.

The results could also indicate an attenuation of the influence of positive parenting and family protective factors within an environment of sustained or increasing risk, as suggested by the Social Interaction Theory (Patterson, 1989), risk theories (e.g., Gutman et al., 2003; Rutter et al., 1997; Sameroff et al., 1998), and the ecological model (Brofenbrenner, 1979, 1986). Parental incarceration can lead to additional stress on the family, both during incarceration and afterwards. This additional strain could be resulting in ineffective parenting practices (i.e., harsh, inconsistent, lack of monitoring) and increased family conflict, which in turn can lead to deviant peer affiliation and increased delinquency during adolescence (Simons, Chao, Conger, & Elder, 2001; Werner & Silbereisen, 2003). Even in families with strong parenting and family functioning, the positive influences of the family can diminish across adolescence as other groups and environments (e.g., peers, other adults, other community influences) become more influential. Due to the parent's criminality and the multiple other family and community challenges, the children are more likely to come in contact with deviant peers and adults, and see or experience criminal behavior and violence. As parental and family influence normatively weakens over adolescence, these negative contextual challenges might result in an increase in externalizing.

6. Limitations

While the current study offers several new contributions to existing research focused on children of incarcerated parents, the study has several key limitations. Perhaps the main difficulty in this study is the measure of parental incarceration, a weakness it shares with prior similar studies. The parental incarceration variable also does not capture elements of the incarceration that might be relevant to the child's development including the length of the parent's incarceration (level of exposure and dose/response relationship), the age of the child at the time of the parent's incarceration, dynamics of the parent-child relationship, the level of family disruption following the incarceration, and the quality and amount of the parent-child interaction over the incarceration. A more complex measure of parental incarceration along with relevant covariates across studies will help clarify the specific aspects of and mechanisms through which parental incarceration impacts child development. Further, future research could gather additional information with regard to indicators of parental criminality, parental substance abuse, and family structure, as these variables may be associated with externalizing behaviors in adolescence.

Another major limitation is the composition of the sample, which was primarily White and from a medium size urban area in the Pacific Northwest. With the disproportionality of specific subgroups (i.e., African Americans/Blacks, Hispanics, males) within the corrections system and different concentrations of incarcerated individuals both within and between urban and rural regions within the U.S., additional studies are needed to examine the impact of parental incarceration within unique groups and other geographical areas.

7. Implications for research and practice

The current study provides new information on the impact of parental incarceration on child development by highlighting some major patterns in the growth of externalizing behaviors across adolescence. However, more longitudinal research is needed. Research that more closely tracks changes in key influences (i.e., parenting, family dynamics, amount of risk) would be helpful in understanding the specific mechanisms through which parental incarceration is affecting child development. Additionally, research that parses out the differential impact of parental incarceration across situations and contexts would help broaden our understanding. Especially important would be to examine how parental incarceration effects child development based on such factors as the length and frequency of the incarceration(s), child characteristics (e.g., age, gender), parent characteristics (e.g., age, gender, risks), and family qualities (e.g., parent-child relationship, family functioning, level of disruption due to incarceration). Such information is critical in the development of age-specific interventions for children of incarcerated parents, which interrupts or prevents this increase of problematic behavior. Lastly, while the increased attention to issues related to the potential collateral damage of parental incarceration on children and families has led to a rise in the development and implementation of programs targeting families experiencing parental incarceration, few interventions have been rigorously tested (Kjellstrand, 2017). More attention is needed in this important arena to ensure that existing interventions are helping, not harming, these children and families.

It is clear that the impact of parental incarceration on the families of incarcerated is complex, where families are frequently facing multiple difficulties simultaneously. This makes it both challenging to understand the effects of parental incarceration on children as well as find solutions that help promote positive youth development for children impacted by parental incarceration. As a first step, practitioners and others working with children and families who have experienced parental incarceration need to be aware of the numerous difficulties these families might face either in conjunction with incarceration or due to parental incarceration. A thorough assessment of both the strengths and challenges for the child and family is a critical first step in the process of developing a relevant intervention plan.

Our findings suggest that early on, special attention needs to be given to the contextual issues related to the family. Based on the findings from this study, and the body of correlational results from similar such studies, evidence does not exist that causally links parental incarceration to child externalizing behavior. This seems to us to be an unlikely explanation by itself. Rather, families experiencing parental incarceration are likely to experience a host of co-occurring vulnerabilities that weaken effective family functioning. Parental incarceration creates both a direct loss for children, but also is likely to disrupt the parenting environment in other ways as other parental figures attempt to cope with the many factors that co-occur with incarceration. When the remaining parental figures experience these heightened stressors, it is likely to have a lasting impact on their ability to harness effective parenting practices that could buffer children from experiencing deleterious outcomes, particularly during the vulnerable period of adolescence and emerging adulthood. Through the guidance of an accurate assessment, a relevant intervention strategy can then be developed which builds on the strengths while mitigating challenges that children and families might be facing.

8. Conclusion

Increasingly, research points to parental incarceration as a source of heightened vulnerability for children, especially in terms of externalizing and antisocial behavior problems. Contrary to the aforementioned extreme statements often made in the popular media about the children of incarcerated parents, however, risk does not imply certainty in life outcomes. This study indicates some of the complexity in the lives of the children of incarcerated parents. A host of social contextual factors are related to externalizing behavior, including some of which are likely to covary with parental incarceration. One result is great variation in outcomes for children who have an incarcerated mother and/or father. Nevertheless, when controlling for some of these covariates, parental incarceration, even measured as a status variable, is an important consideration in understanding growth in externalizing behavior problems over time during the period of adolescence.

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