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The Role of a Parent's Incarceration in the Emotional Health and Problem Behaviors of At-Risk Adolescents

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The impact of a parent's incarceration and adolescents' emotional health on their substance abuse and delinquency is described for a group of at-risk 10- to 14-year-old adolescents. Data were drawn from a two-wave longitudinal study from the federally funded Children at Risk program, ongoing in five states from 1993 to 1997. Results point to a significant role played by a parent's incarceration in at-risk adolescents' problem behaviors but no mediating role played by the adolescents' emotional health. Adolescents' self-reports suggest that emotional health is associated with comparatively few problem behaviors, and associations that were observed were stronger for females than for males. The results call for further studies specifying models of the social mechanism that leads from parents' incarceration to children's problem behaviors.

KEYWORDS at-risk adolescents, emotional health, parent's incarceration, problem behaviors

INTRODUCTION

In the late 1990s, the Bureau of Justice Statistics conducted a survey that suggested two-thirds of incarcerated women and one-half of incarcerated men were the parents of children under 18 years of age (Myers, Smarsh, Amlund-Hagen, & Kennon, 1999). Government estimates show approximately 1.5 million children in the United States have a parent who is incarcerated

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(Arditti, Lambert-Shute, & Joest, 2003; Phillips, Burns, Wagner, Kramer, & Robbins, 2002), and the number of children with parents involved in the corrections system has doubled in the past 15 years (Miller, 2006).

Children who experience parental incarceration are more likely than their peers to be diagnosed with emotional disorders (Phillips et al., 2002). Furthermore, research suggests that the children of prisoners are more likely to experience volatile home environments that can lead to emotional stress (Greene, Haney, & Hurtado, 2000; Myers et al., 1999). Thus, the United States has a significant population of children experiencing significant emotional disturbance (with symptoms like crying, withdrawal from peers, and sleep problems) as well as emotional stress attributable to loss of a parent to the corrections system (Fritsch & Burkhead, 1981; Greene et al., 2000; Myers et al., 1999; Parke & Clarke-Stewart, 2002).

Children of incarcerated parents experience a variety of behavior problems (Phillips et al., 2002). Such children often experience emotional disturbance that can lead to significant adjustment problems (Peniston, 2006). Some research suggests that a history of family criminal behavior is a predictor of delinquent behavior in offspring up to age 32 (Kemper & Rivara, 1993). Studies of incarcerated mothers have suggested that up to 40% of their children ages 12–17 are involved in criminal behavior (Crawford, 2003).

Prominent research on parent criminality and child delinquency has noted gender differences in the emotional stability of at-risk adolescents (Marcotte, Fortin, Potvin, & Papillon, 2002). Females have consistently demonstrated lower self-esteem (Quatman & Watson, 2001), and males report more substance abuse and aggressive delinquent acts (Rhodes & Fischer, 1993; Swahn & Bossarte, 2007). Thorough examination of gender's role for children of the incarcerated could broaden our understanding of the problems experienced by this unique population.

The present study is significant in highlighting the problems of inmates' children, a population that has been long ignored, in terms of population analysis, policy reform, and scholarly research. It appears that many earlier researchers apparently perceived families associated with the criminal justice system as unwholesome (Arditti et al., 2003; Lowenstein, 1986). In addition, the literature includes very little longitudinal research in this area, and this study provides two-wave longitudinal data illuminating long-term outcomes for children of incarcerated parents (Lowenstein, 1986). Citing attachment theory, the study elaborates a social mechanism that may link parent's incarceration to emotional health and adjustment problems. It thus represents theoretical conceptualization in an area that to date lacks adequate empirical study. Also important, the present study's emphasis on gender differences in the specified population should offer useful, gender-specific suggestions concerning social and psychological services provided to inmates' children. All in all, the present study is unusual in employing a theoretically developed model to link parental incarceration to children's emotional health and problem behaviors, delineating how the model works for each gender.

The present study employed data from a two-wave longitudinal study of a group of at-risk adolescents, to achieve four specified objectives:

1. examination of effects of parental incarceration on delinquency and drug use (two adjustment problems);
2. determination of whether their emotional health mediates adjustment problems displayed by many children of inmates;
3. identification of any gender-differentiated effects of emotional health on the children's adjustment problems; and
4. identification of any gender-differentiated effects of parental incarceration on children's adjustment problems.

Attachment theory provided the foundation for illustrating linkages between parental incarceration, emotional health, and problem behavior and allowed us to incorporate gender in explanations of these linkages. A two-stage multiple regression technique was used to conduct data analyses. Results suggested that parental incarceration and youths' emotional health have significant effects on adolescent problem behavior. Emotional health's impact on the problem behavior delinquency was especially strong among the female adolescents in this study.

Parental Incarceration, Gender, and Emotional Health

Recent harsh sentencing laws and the resulting rise in the number of men and women incarcerated (Arditti et al., 2003; Crawford, 2003; Kemper & Rivara, 1993) have led to an increase in the number of the nation's children who in effect have lost a parent (Phillips et al., 2002; Quilty & Butler, 2005). When parents are locked away to pay for crimes, the bonds needed to develop their children's emotional health and normalcy in the parent-child relationship are severed, and the child's attachment is threatened. Lack of a supportive parent-child relationship during adolescence can lead to emotional instability and risk-taking behavior.

Research has repeatedly found a substantial connection between parental criminality and emotional health problems among children (Fritsch & Burkhead, 1981; Phillips et al., 2002). Parental incarceration may create the *disenfranchised grief* said to occur "when persons experience a loss that is not or cannot be openly acknowledged, publicly mourned, or socially supported" (Arditti, 2005, p. 253). Children who lose a parent to incarceration often receive no opportunity to grieve publicly for the "social death" of the parent and so mourn in isolation (Fishman, 1981). Research suggests that disenfranchised grief intensifies the emotional responses and psychological problems of family members of incarcerated individuals (Arditti, 2005).

Children of incarcerated parents experience emotional, psychological, and interactional problems, being more likely than other children to develop low self-esteem, disordered sleeping and eating, and clinging behavior (Fishman,

1981; Fritsch & Burkhead, 1981; Johnson & Waldfogel, 2002a; Lowenstein, 1986; Myers et al., 1999; Parke & Clark-Stewart, 2002; Poehlmann, 2005). Many children of incarcerated parents have experienced a volatile, stress-inducing home environment that can lead to emotional instability (Johnson & Waldfogel, 2002a). In such homes, the odds increase that a child will develop maladaptive emotional patterns in response to a deficient sense of safety and security (Greene et al., 2000). Children whose mothers are incarcerated often suffer from Post-Traumatic Stress Disorder (PTSD), an emotional malady involving afflicted thinking and attentiveness, suicidal feelings, and withdrawal (Young & Smith, 2000). Older children who experience parental incarceration may, furthermore, have been exposed to years of family instability (Greene et al., 2000; Johnson & Waldfogel, 2002a). Many adolescents with incarcerated parents may be experiencing *enduring trauma*: years of exposure to violence, grief, insecure attachment, exploitation, delinquency, and neglect (Myers et al., 1999).

We have furthermore learned that internalizing depressive symptoms (e.g., eating disorders), which are more common in females, can arise from an insecure attachment relationship leading to suppression of anger, whereas externalizing symptoms (e.g., physical altercations), which are more common in males, can arise when deficient attachment engenders disregard for emotional well-being (Block, Gjerde, & Block, 1991). In one study, females exhibited internalizing behaviors in response to frustration with their family relationships, and males exhibited externalizing behaviors in response to difficult relationships and emotions (Calhoun, 2001).

Comprehensive self-esteem, defined as a person's overall feeling of value and recognition, has a primary role in emotional and psychological health (Kling, Hyde, Showers, & Buswell, 1999) and can be influenced by gender, since research consistently has shown rates of self-esteem and depression to differ between genders, especially during adolescence (Kling et al., 1999; Marcotte et al., 2002; Polce-Lynch, Myers, Kliewer, & Kilmartin, 2001; Quatman & Watson, 2001). Recent research suggests certain gender-based differences in the attachment relationship itself, with females tending to develop sense of self through relationships with others in a way males usually do not (Calhoun, 2001). Males' and females' patterns of behavioral adjustment are distinct because the two groups' emotional health is vulnerable to distinct influences (Wiesner, Weichold, & Silbereisen, 2007).

Parental Incarceration, Gender, and Problem Behaviors

Studies of children experiencing parental incarceration also suggest a link between parental incarceration and adolescents' adjustment problems, including delinquent behavior (Keller, Catalano, Haggerty, & Fleming, 2002; Phillips et al., 2002). Recent research found children traumatized by a parent's incarceration and also exposed to substance abuse and mental illness may become risk-takers, engaging in smoking, illicit alcohol use, and marijuana use (Butters, 2002; Francis-Smith, 2007). Brook and colleagues (2001) suggest

that a parent-child relationship characterized by distance (physical and emotional) promotes instability in maternal and paternal attachment, leading at times to a child's abuse of drugs. Emotionally disturbed children of incarcerated parents are more likely than other children to engage long-term in antisocial behavior that can greatly affect their health and well-being (Lowenstein, 1986; Young & Smith, 2000).

In addition, parent-child attachment involves a great deal of "information" about gender and gender-based behavior (Shaw & Dallos, 2005). For this reason, studying differences between male and female adolescents' parental attachment is important to informed discussion of adjustment issues. Research in much larger populations than the one of interest to the present study has already suggested that in their close relationships, males tend to exhibit aggression and avoid intimate discussion, while females infrequently "act out" or demonstrate hostility (Shaw & Dallos, 2005). It is also well established in the literature that males more often than females engage in illegal substance use and delinquency (Braithwaite, Conerly, Robillard, Stephens, & Woodring, 2003; Cotton et al., 1994; Rhodes & Fischer, 1993; Rudatsikira, Singh, Job, & Knutsen, 2007; Swahn & Bossarte, 2007; Wiesner et al., 2007).

The Relevance of Attachment Theory

The linkage presented in the literature among parental incarceration, children's feelings of insecurity, children's emotional instability, and such maladjusted behavior as delinquency and substance use serves to illustrate attachment theory. Attachment theory argues for the existence and significance of a strong parent-child relationship (Ainsworth & Bowlby, 1991), holding that a loss of opportunity for constant, consistent contact between parent and child hinders the latter's secure attachment to the parent (Parke & Clarke-Stewart, 2002). Parent-child attachment directs the child's awareness of and participation in relationships with others, through which norms and moral principles are internalized (Ainsworth & Bowlby, 1991; Johnson & Waldfogel, 2002a).

Attachment relationships, in other words, supply the background for development of the internal representations of self that (1) direct a child's behavioral and psychological responses and (2) essentially define future relationships (Poehlmann, 2005). Furthermore, the quality of attachment shapes children's views on society, influences their ideas concerning their own prospects, and contributes to their aptitude for self-regulation (Johnson & Waldfogel, 2002a). Attachment theory, finally, states that a strong attachment relationship promotes healthy development by offering children the security and comfort whose presence fosters independent exploration (Vivona, 2000). When attachment figures—parents—are not perceptive enough or when they are simply not present, as in the case of extended separation, children, Vivona (2000) suggests, cannot perceive attachment relationships.

Since persistent and prevalent influence of the parent-child bond is the basis of solid attachment relationships, the children of incarcerated parents

experience deficient attachment relationships. Visitation policies typically in effect in prisons clearly do not facilitate parent-child interaction and bonding (Arditti et al., 2003), impairing attachment. Research has linked impaired attachment security to numerous adjustment problems, such as emotional distress and illegal substance use (Vivona, 2000).

Proposed Hypotheses

The present study hypothesized that a parent's incarceration is a risk factor for the problem behaviors delinquency and substance use in adolescence (H1). Following a parent's incarceration, children lack a sufficient parent-child bond and have a deficient attachment relationship, which accompanied by environmental instability can lead to adjustment problems and problem behavior (Parke & Clarke-Stewart, 2002; Vivona, 2000).

The present study further hypothesized that emotional health mediates the effects a parent's incarceration has on the two problem behaviors (H2). Since the lack of parent-child attachment relationship impairs children's development of emotional and psychological health (Poehlmann, 2005), and in light of research results that have shown children of incarcerated parents to have a tendency toward drug use and antisocial behavior if they experience emotional instability (Brook et al., 2001; Lowenstein, 1986; Young & Smith, 2000), we hypothesized that emotional health mediates the impact of parent's incarceration on adolescents' problem behavior.

Another core hypothesis held that gender would moderate the effects of parental incarceration and emotional health on delinquency and substance use (H3). Because parental incarceration severs parent-child attachment, and because females tend to be more affected by severed relationships than males, effects of a parent's incarceration on problem behavior should differ for boys and girls (Calhoun, 2001). We hypothesized that we would find gender differences in emotional health's impact on problem behavior, based on earlier findings that gender-distinct levels of emotional health make a notable impact on adjustment (Wiesner et al., 2007).

In the present study, race, age, and educational aspirations were employed as control variables. The literature shows that race and age play a role in problem behavior (Braithwaite et al., 2003; Rudatsikira et al., 2007). Evidence suggests that sharing in long-range, approved goals like adequate education helps individuals conform to norms and meet expectations, discouraging both substance use and delinquent behavior (Rankin, 1976).

METHODS

Design and Sample

The present research is based on a two-wave longitudinal study of data collected from randomly chosen adolescents and their parents or caregivers

as part of an effort to validate the Children at Risk (CAR) program (Peniston, 2006). Developed, funded, and monitored by the National Center on Addiction and Substance Abuse at Columbia University, CAR was a drug- and delinquency-prevention program for young adolescents in severely impoverished neighborhoods in Connecticut, Georgia, Tennessee, Texas, and Washington. The CAR-related data collection comprised two formal interviews at the participants' homes, one a baseline and one a follow-up interview. Follow-up interviews with parents and caregivers were conducted two years after their baseline interviews; for the adolescents, follow-up interviews took place three years after baseline interviews. Data on adolescent participants' contact with law enforcement were collected from target cities' police departments and courts; data on school attendance and performance were collected from official records provided by school districts. Baseline interviews of both study groups were conducted between January 1993 and May 1994, during the month following an adolescent's recruitment into CAR. End-of-program follow-up interviews with parents and caretakers were conducted approximately two years later, between December 1994 and May 1996. Follow-up interviews with the adolescents were conducted one year after CAR ended, between December 1995 and May 1997. In producing final models, the present study used data from the baseline and follow-up interviews with parents and caregivers and from the follow-up interviews with adolescents.

To participate in CAR, a child had to be enrolled in sixth or seventh grade, had to be 10–14 years old, had to live in a target neighborhood, and had to have exhibited at least some risk factors of a school, family, or personal nature. Indicators of school-based risk included disruptive behavior, suspension from school, and poor academic performance. Indicators of family-based risk included violence and drug use in the home. Indicators of personal risk included mental illness, pregnancy, and an arrest record.

Questionnaires answered by adolescents during CAR's baseline and follow-up interviews addressed alcohol and drug use, delinquent behavior, and emotional health; questionnaires answered by parents and caregivers addressed family problems, personal problems, and concerns about an adolescent's behavior. The response rate among the adolescents was 98% at baseline and 77% at follow-up; for parents and caregivers, it was 97% at baseline and 76% at follow-up, which resulted in a sample size of 874. The present study looked only at information provided by participating adolescents' mothers and fathers (no caretakers), producing a final sample of 771 respondents. The present study used data from three of the four rounds of interviews, excluding that from the adolescents' baseline questionnaire.

Measures

Variables are described and descriptive statistics are shown in Table 1. Two continuous dependent variables were used in the study, adolescent Substance Use (W2) and adolescent Delinquency (W2). An index measuring Substance

TABLE 1 Description of Variables and Descriptive Statistics

Variable	Measurement	M	SD	N
Substance Use (W2)	Level of substance use was measured with an additive index comprising 7 items. The specific items were: (1) How often have you had alcohol during the last 12 months? (2) How often have you used marijuana or hashish during the last 12 months? (3) How often have you used psychedelics during the last 12 months? (4) How often have you used crack cocaine during the last 12 months? (5) How often have you used cocaine in any other form during the last 12 months? (6) How often have you used heroin during the last 12 months? (7) How often have you taken medicine for nonmedical use on your own—that is, without a doctor telling you to take them during the last 12 months? Responses were coded on a 7-point scale (1 = never, 2 = 1–2 times, 3 = 3–5 times, 4 = 6–9 times, 5 = 10–19 times, 6 = 20–39 times, 7 = 40 or more times) [$\alpha = .80$]	7.27	1.27	743
Delinquency (W2)	Delinquency level was measured with an additive index comprising 12 items. The specific items were: How many times in the past year (1) have you run away from home for overnight or longer? (2) have you taken something from a locker, house, or car worth under $50? (3) have you taken something from a locker, house, or car worth over $50? (4) have you taken a car or motorcycle for a ride without the owner's permission? (5) have you tried to buy or sell things that were stolen? (6) have you set fire or tried to set fire to somebody else's property on purpose? (7) have you damaged, destroyed, or marked up somebody else's property on purpose? (8) have you taken part in a fight where a group of your friends were against another group? (9) have you made someone give you money or things, whether you used a weapon or not? (10) have you attacked someone with the idea of seriously hurting them, whether with a weapon or not? (11) have you forced or tried to force someone to do sexual acts?	13.71	2.98	742

	(12) have you carried a weapon, such as a gun, a pocketknife, other knives, or razors? Responses were coded on a 4-point scale (1 = never, 2 = 1–2 times, 3 = 3–4 times, 4 = 5 or more times) [α = .79]			
Emotional Health (W2)	Emotional health was measured with an additive index comprising 10 items. The specific items were: (1) I take a positive attitude toward myself. (reverse coded) (2) Life often seems meaningless. (3) People should do their own thing, even if other people think it is strange. (reverse coded) (4) I feel I do not have much to be proud of. (5) I feel I am a person of worth and equal to others. (reverse coded) (6) I enjoy life as much as anyone. (reverse coded) (7) Sometimes I think I am no good at all. (8) I am able to do things as well as most other people. (reverse coded) (9) The future often seems hopeless. (10) I feel that I can't do anything right. Responses were coded on a 4-point scale (1 = agree, 2 = somewhat agree, 3 = somewhat disagree, 4 = disagree) [α = .71]	33.15	5.52	743
Parental Incarceration (W1 & W2)	Parental incarceration (coded 0 = never incarcerated, 1 = incarcerated in the past) was measured with 2 items combined from the parent and caregiver questionnaire: (1) W1 Have you ever been in jail? (1 = yes, 0 = no) (2) W2 During the past two years, have you been in jail? (1 = not at all, 2 = once or twice, 3 = several times)	0.19	0.39	762
Female	Gender of youth (1 = female)	0.49	0.5	771
Age (W1)	Age of youth at intake, in years (range = 10–14)	12.38	0.69	771
African-American	Race of respondent (1 = African-American, 0 = other race)	0.56	0.5	766
Educational Aspirations (W2)	College plan (1 = will go to college, 0 = will not go to college)	0.86	0.35	715

Use (W2) was developed using seven self-report questions for adolescents, taken from the follow-up questionnaire. These questions elicited the number of times in the preceding year the adolescent had used seven separate illegal substances (alcohol, marijuana, psychedelics, crack cocaine, cocaine, heroin, and medicine used for nonmedical purposes). Offered responses ranged from 1 (never) to 7 (40 or more times). The final scores ranged from 7 to 36 in this study, with a higher score indicating a higher level of substance use. The index demonstrated strong reliability (alpha = .80). An index measuring Delinquency was developed using 12 self-report questions from the adolescent follow-up questionnaire. The 12 elicited the number of times in the preceding year the adolescent had engaged in 12 different delinquent activities (running away from home, taking something worth under $50, taking something worth over $50, joyriding, buying or selling stolen items, setting a fire, vandalizing property, group fighting, taking money by force, attacking others, forcing someone to do sexual acts, and carrying weapons). Response categories for each of the 12 ranged from 1 (never) to 4 (5 or more times). The final scores ranged from 12 to 31 in this study, with a higher score indicating a higher level of delinquency. The delinquency index, too, demonstrated strong internal consistency (alpha = .79). Because the substance use variable and delinquency variable appeared skewed in their distributions, linear regression analysis within the study was conducted using the logarithmic transformation of the two dependent variables.

The three independent variables in this study were Emotional Health (W2), Parental Incarceration (W1 & W2), and Female. An index measuring Emotional Health was developed from the follow-up questionnaire for adolescents and incorporated 10 agree/disagree statements about emotional health (self-worth, enjoyment of life, etc.). Response categories ranged from 1 (agree) to 4 (disagree). Several items were reverse coded to make a higher value of the index indicating better emotional health. The final scores ranged from 16 to 40. The index demonstrated reasonable internal consistency (alpha = .71).The dummy variable Parental Incarceration (W1 & W2) was measured via the parents' responses to self-report questions (from both baseline and follow-up questionnaires) concerning any jail sentences they had served. A response of 1 indicated at least one incarceration reported for the period prior to the follow-up interview; a response of 0 indicated no prior incarceration. The variable Female was measured as 1 for female study participants and 0 for male participants.

The study's three control variables were Race, Age, and Educational Aspirations. Race was measured by a dummy variable, with 1 assigned to African-American study participants and 0 assigned to participants of other races. Age was represented as a continuous variable ranging from 10 to 14 years, even though all child participants had been young adolescents. Measuring the educational aspirations variable, 1 indicated that the respondent thought he or she would attend college, and 0 indicated he or she thought college did not lie ahead.

Data Analysis

A two-stage ordinary least squares regression was used to explain the two outcome variables, Substance Use and Delinquency. In the first stage, the outcome variable was regressed on parental incarceration, gender, and the control variables. During the second stage, Emotional Health was added, as were two interaction terms linking gender to parental incarceration and emotional health. Significant interaction effects would signal a moderating role for gender in the effects of parental incarceration and emotional health on the two problem behaviors; if they lacked significance, the interaction terms could be dropped from the model to maintain parsimony. If Emotional Health proved to be a mediating variable as hypothesized, the coefficient values associated with the variable Parental Incarceration in the two-stage models would be reduced.

RESULTS

Overall, the study identified a low level of the problem behaviors of interest—substance use and delinquency—characterizing the group of at-risk adolescents, 49% of whom were females. Fifty-eight percent of the adolescents reported their ethnic background as African-American, and the adolescents' average age was slightly over 12 years. The respondents self-reported a relatively high level of emotional health. Emotional Health was found to be related to both of the problem behaviors ($p < .01$); parental incarceration showed a positive bivariate relationship with delinquency but not with substance use. Correlation coefficients show the two problem behaviors to have a positive relationship ($p < .01$). Concerning the study's adult sample, of 771 parents finally analyzed, 91% were mothers of an adolescent respondent. About 1 in 5 adult respondents (19%) indicated that they had previously been incarcerated. See Table 2.

Before any further analyses were conducted, the tolerance levels of all variables were examined. There was no evidence of multicollinearity

TABLE 2 Correlations of All Included Variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Parental Incarceration W1 & W2 (1)	1.00						
Female (2)	0.04	1.00					
Educational Aspirations W2 (3)	0.00	0.11**	1.00				
African-American (4)	−0.01	0.06	0.01	1.00			
Age W1 (5)	−0.01	−0.05	−0.09 *	−0.10**	1.00		
Emotional Health W2 (6)	−0.01	−0.07*	0.17**	0.11**	−0.04	1.00	
Substance Use W2 (7)	0.07	−0.03	−0.15**	−0.02	0.09*	−0.16**	1.00
Delinquency W2 (8)	0.16**	−0.12**	−0.20**	−0.06	0.14**	−0.16**	0.29**

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

when the models contained no interaction terms. The skewed distribution of Substance Use and Delinquency, the dependent variables, led us to employ their logarithmic transformations to conduct linear regression analyses.

Table 3 presents results found for the substance use outcome variable. In the Stage One model, only parental incarceration, gender, and control variables were included to explain the outcome variable. In the Stage Two model, emotional health was also incorporated. The two interaction terms were not found to be significant and thus were dropped from the final model. In both models, however, Parental Incarceration, Educational Aspirations, and Age were found to be statistically significant ($p < .01$), while in the Stage Two model, emotional health proved significant ($p < .01$). The two control variables race and gender were not found to be statistically significant ($p > .05$). As expected, adolescents having a parent who had been incarcerated in the past were more likely than those not experiencing parental incarceration to self-report substance use, with older adolescents reporting more substance use than younger adolescents. Respondents planning to attend college self-reported less substance use than those who did not believe they would attend college. Emotional health, while found to decrease self-reported substance use among the at-risk adolescents, was not shown by this study to mediate parental incarceration's impact on substance use. The results for the substance use outcome variable support the first hypothesis, which is that parental incarceration affects adolescents' substance use. However, results do not support the second hypothesis, which is that emotional health mediates the parental incarceration's impact on adolescent substance use, or the third hypothesis, that gender moderates the impact of parental incarceration and emotional health on adolescent substance use. The model fit was found to be statistically significant, with 7.3% of the variance in substance use explained by the final Stage Two model.

TABLE 3 The Effects of Parental Incarceration W1 & W2, Gender, and Emotional Health W2 on the Ln of Substance Use W2

	Stage One		Stage Two	
	b Coeff.	Beta	*b* Coeff.	Beta
Constant	1.832**		1.930**	
Parental Incarceration W1 & W2	0.029**	0.110	0.030**	0.113
Female	0.000	0.002	–0.003	–0.013
Educational Aspirations W2	–0.046**	–0.153	–0.036**	–0.120
African-American	–0.008	–0.040	–0.004	–0.019
Age W1	0.015**	0.099	0.015**	0.101
Emotional Health W2			–0.003**	–0.179
F-Test	7.380**		10.027**	
Adjusted *R* Square	0.040		0.073	
N	697		687	

**$p < .05$.

Note. Ln = natural logarithm.

Table 4 presents results explaining adolescent delinquency. In the Stage One model, applying ordinary least squares regression with the Delinquency variable produced results very similar to the substance use variable. Parental incarceration and lack of educational aspirations showed an association with greater delinquency among the adolescents ($p < .01$), and, again, increased delinquency appeared with increasing age ($p < .01$). The control variable race was not found to be statistically significant in the model ($p > .05$). During development of the Stage Two model, however, a statistically significant Female*Emotion interaction term ($p < .01$) was found; it was retained in the final model. The coefficient value for parental incarceration actually increased slightly in the Stage Two model versus the Stage One model, meaning emotional health did not mediate parental incarceration's impact on delinquency. The first hypothesis, then, is supported: Parental incarceration affects adolescents' delinquency. The second hypothesis, however, is not: This study does not indicate that emotional health mediates parental incarceration's impact on delinquency.

The significant interaction effect involving the female and emotional health variables means that, in this study, the relationship between emotional health and delinquent behavior differed by gender. Gender moderated the effect of emotional health on delinquent behavior; emotional health's negative impact on delinquency was much stronger among females than males. The results for the outcome variable delinquency indicated partial support for the third hypothesis. Gender was found to moderate the impact of emotional health on delinquency, but it was not found to moderate parental incarceration's impact on delinquency. Again, the final model found age and educational aspirations to be significant, explaining about 11% of the variance in the Delinquency variable.

TABLE 4 The Effects of Parental Incarceration W1 & W2, Gender, and Emotional Health W2 on the Ln of Delinquency W2

	Stage One		Stage Two	
	b Coeff.	Beta	*b* Coeff.	Beta
Constant	2.270**		2.336**	
Parental Incarceration W1 & W2	0.057**	0.130	0.061**	0.136
Female	−0.030	−0.086	0.131*	0.376
Educational Aspirations W2	−0.095**	−0.186	−0.081**	−0.160
African-American	−0.013	−0.037	−0.008	−0.023
Age W1	0.034**	0.135	0.033**	0.130
Emotional Health W2			−0.002	−0.062
Female*Emotion W2			−0.005**	−0.485
F-Test	13.29**		12.785**	
Adjusted *R* Square	0.081		0.108	
N	696		685	

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

Note. Ln = natural logarithm.

DISCUSSION

The foregoing results suggest a significant association between parental incarceration and these adolescents' self-reported substance use and delinquency rates, upholding our primary hypothesis. Supporting another of our hypotheses is the finding that gender played a role both in the adolescents' delinquency rates and in how their delinquent behavior was shaped by their emotional health. Emotional health, however, did not here mediate the impact of parental incarceration on substance use or delinquency, as we had hypothesized it would. The present findings are consistent with attachment theory's proposition that deficient or insecure parent-child attachment relationships produce maladaptive adjustment in children (Vivona, 2000). Through attachment theory, we were able to outline theory-based relationships among parental incarceration, emotional health, and substance use and delinquent behavior. The study demonstrated that insecure attachment relationships, attributed here to parental incarceration, resulted in adolescents' adjustment-related delinquency and substance use (Keller et al., 2002).

Our data do not support the hypothesis stating that emotional health mediates parental incarceration's effects on adolescents' substance use and delinquency. The literature notes that incarceration of a parent breaks down the parent-child bond and that psychological, emotional, and interactional problems can result (Parke & Clarke-Stewart, 2002). These problems often bring on maladjustment manifested as problem behavior (Lowenstein, 1986; Miller, 2006). Our unanticipated result, therefore, may arise from inadequate measuring of the emotional health variable. We measured emotional health with an index focusing on comprehensive self-esteem, perhaps neglecting general emotional health measures—attachment theory stresses general emotional health (Vivona, 2000). Or, perhaps the unanticipated finding suggests that emotional health may not account entirely for the link between parent's incarceration and adolescents' problem behavior. Alternative social mechanisms may more accurately delineate the effects of parental incarceration on problem behavior.

Gender's hypothesized role in adolescent delinquency and substance use received partial support from the present results, which suggest that emotional health's impact on delinquency is distinct for each gender. The adolescents' self-reports indicate that emotional health affects problem behavior, especially among female respondents. Gender differences in emotional health's impact on delinquency merit discussion. The concept is consistent with attachment theory, which suggests that male-female variance in emotional health has a marked effect on behavior (Wiesner et al., 2007). In the present study, the impact of emotional well-being on delinquent behavior differed by gender, females characterized by a stronger negative relationship between emotional health and delinquent behavior.

Our results do not show gender to significantly predict substance use, but this is consistent with previous studies of adolescents (Johnston, O'Malley, & Bachman, 1999; Substance Abuse and Mental Health Services Administration

[SAMHSA], 1997). Some empirical research notes differences in the substance-use rates of adolescent males and females (Braithwaite et al., 2003; Swahn & Bossarte, 2007; Wiesner et al., 2007), but data from sources such as the National Household Survey on Drug Abuse suggest that a gender gap in alcohol, tobacco, and drug use no longer exists in the 12–17 age bracket (SAMHSA, 2000a, b). Although adolescents generally have been experimenting with illicit substances at increasingly younger ages, the phenomenon is more pronounced among girls than boys (SAMHSA, 1997). Furthermore, there are some substances (e.g., prescription stimulants) for which girls have shown higher rates of use than boys (Johnston et al., 1999). There is very little indication of what has caused these changes; the literature pays little attention to these trends (Amaro, Blake, Schwartz, & Flinchbaugh, 2001).

Results involving our control variables were consistent for both dependent variables. For example, we expected that surveyed adolescents who reported having long-term educational goals would engage in less substance use and fewer delinquent behaviors than peers without such goals, and the data confirmed that a young adolescent's commitment to educational achievement (a conventional ideal or value) is associated with a low level of problem behavior. Increasing age proved to be significantly related to increasing use of substances and increasing delinquency. These results have important policy implications for professionals working with young adolescents, as the literature has consistently shown (Greene et al., 2000; Johnson & Waldfogel, 2002b).

Study Limitations

The present research had certain limitations. First, our measures for parental incarceration and emotional health proved inadequate. The measure for parental incarceration was broad and general. Many variable aspects of incarceration not specified here could conceivably alter its effects on children: child's age when parent was incarcerated, length of parent's sentence, number of previous incarcerations. In addition, the employed measure of emotional health was, we have explained, limited to self-esteem, taking into account no other aspect of emotional health (e.g., depression or other psychological diagnoses).

Second, while we looked to attachment theory to ground our hypothesis that emotional health mediates the effects of parental incarceration on problem behavior, alternative social mechanisms may link parental incarceration to problem behavior. Social learning variables, for example, could be employed to understand problem behavior of adolescents exposed to parents' criminal behavior. Future studies should incorporate other potential mediating factors in adjustment problems of adolescents experiencing parental incarceration.

Third, the CAR survey data did not identify the kind of household children lived in prior to a parent's incarceration. It is known that many children never share a household with, particularly, their fathers. Incarceration of a parent cannot

affect an attachment relationship that never formed (for example, because a noncustodial parent was altogether absent); in such a case incarceration does not influence the child's behavior. Fourth, our sample's exclusion of adolescents not considered at risk means that the results have limited generalizability. Fifth, because our model explained only small amounts of variance in the two problem behaviors, future studies should involve other factors that may explain more of it. Despite these limitations, however, this study has import as one of the very first to pursue evaluation of the impact of parental incarceration on children's substance use and delinquency.

The attachment relationship proved key in terms of both variables (Parental Incarceration and Emotional Health) our study found to affect the two problem behaviors. Such a result holds certain implications for criminal justice and counseling professionals, especially those who work with at-risk adolescents. Parental involvement in the criminal justice system seems a complex issue demanding a complex response. Nevertheless, prevention and intervention programs can approach their goals more closely by fostering the strong parent-child attachment relationship that defuses development of adjustment problems in children (Johnson & Waldfogel, 2002a; Parke & Clarke-Stewart, 2002; Poehlmann, 2005; Vivona, 2000). One implication of our particular findings is that courts and corrections systems ought not to thwart inmates' attachment relationships with their children. Rather, sentencing reform, revised visitation policies, and provision of addiction and mental health services to incarcerated parents should be instituted, to benefit children and weaken the generational recurrence of criminality. Furthermore, family-based counseling services for children experiencing parental incarceration would certainly reduce the children's rates of delinquency and substance use (Vivona, 2000).

Moreover, further development of evidenced-based interventions employing gender-specific models is called for. The present study suggests that positive emotional health is linked especially strongly to females' reduced delinquency. Practitioners involved in intervention with girls should thus work to improve girls' self-image, self-esteem, and sense of self-efficacy, helping them develop competencies in areas like interpersonal communications and problem solving. Future scholarly work should foster understanding of how gender affects emotional health—particularly that of children experiencing parental incarceration—to short-circuit the connection between parental incarceration and adjustment among high risk-youths.

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