

Morbidity and Mortality Risk Among the “Forgotten Few”: Why Are Girls in the Justice System in Such Poor Health?

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Published online: 22 October 2009

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Abstract The present study assessed the physical health of a population of girls sentenced to custody in a large US State via medical examinations and clinical assessments in adolescence and young adulthood. Findings indicated that injuries, obesity, and sexually transmitted diseases were the norm, with over 50% of the population meeting criteria for each of these health problems. A dose–response relationship was documented between childhood victimization and injuries and injury risk in adolescence and self-harm, HIV risk, physical health symptoms, and hospitalizations in young adulthood. The relationship between childhood victimization and poor adult physical health was fully mediated by health-risk behaviors in adolescence. Clinical and policy implications of the high mortality and morbidity risk among female juvenile offenders are discussed.

Keywords Physical health · Female offenders · Risky families · Domestic violence · Child maltreatment · Health-risk behaviors

Adolescent females within the juvenile justice system are an understudied and underserved population. In recent years, it has become more difficult to ignore this population as young women now comprise nearly a third of all juvenile arrests, with a 52% increase in the number of females sentenced to custody between 1991 and 2003 (NMHA, 2003). Prior research has demonstrated that females within the justice system may be especially vulnerable due to their

high rates of mental health problems and abuse histories (Abram, Teplin, McClelland, & Dulcan, 2003; Fazel, Doll, & Langstrom, 2008). While efforts are underway to address the unique mental health needs of girls in the system (Zahn, Hawkins, Chiancone, & Whitworth, 2008), very little attention has been paid to the medical and physical health challenges that these young women face. The failure to prioritize and understand the physical health needs of female juvenile offenders is important as the Department of Juvenile Justice has a moral and legal obligation to provide for the medical needs of adolescents in their care (Grisso, 2004), a right that is made explicit in Article D.31 of the *United Nations Rules for the Protection of Juveniles Deprived of their Liberty*.

Despite their legal obligations, many juvenile justice institutions have failed to meet the health needs of detained youth. This type of neglect has resulted in a number of legal challenges waged against juvenile justice facilities over the past 30 years (Kline, 2005). For example, in the case of *Jimmy Doe et al. v. Cook County* (1999), the American Civil Liberties Union launched a federal lawsuit against Chicago’s infamous Cook County Detention Center, citing the facility’s insufficient mental and physical health care, excessive punishment and violence, overcrowding, ineffective management, understaffing, poor sanitation and nutrition services.

The organization Physicians for Human Rights has also become invested in this issue, citing the need to monitor the health crisis that is occurring within the walls of US Detention Centers as large numbers of already marginalized and under-served adolescents enter these contexts. More specifically, this advocacy group has emphasized the need to develop gender-specific practices to protect the endangered health and human rights of girls in custody (Physicians for Human Rights, 2008). Unfortunately,

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responses to this health crisis have been thwarted by the historical neglect of girls as a relevant population in juvenile justice research. As a result, we are missing basic descriptive information documenting the profile and scope of medical and physical health problems among these young women both during and following their incarceration. Moreover, we currently lack an integrated theoretical framework for understanding the shared origins and complex interplay between poor physical health and antisocial behavior among adolescent girls.

In this article we review research from psychology, criminology, and medicine that has assessed the link between antisocial behavior and poor health. To this end, we apply the *risky families model* (Repetti, Taylor, & Seeman, 2002) as a framework for understanding the shared and unique pathways to antisocial behavior and physical health that are believed to stem from growing up in families marked by domestic violence and child maltreatment. We then document the prevalence of medical and physical health problems among a representative sample of incarcerated females and test the hypothesis that risk for physical injury and disease within this population is transmitted—at least partially—through risky family contexts.

ANTISOCIAL BEHAVIOR AND POOR HEALTH

The hypothesis that antisocial behavior and physical health are related is not new. High rates of comorbid medical and behavioral problems have been reported since the first juvenile court was formed in the United States at the turn of the 19th century (Schlossman, 2005). Moreover, the value of conduct disorder in predicting adult physical health has long been known, with one of the first reports surfacing in 1963 (Robins & Rutter, 1990). Since that time, a significant body of research has emerged linking antisocial behavior to early biomarkers of disease (Odgers et al., 2008) and self-reported health problems (Bardone et al., 1998; De Genna, Stack, Serbin, Ledingham, & Schwartzman, 2006; Farrington, 1995; Pajer, Stouthamer-Loeber, Gardner, & Loeber, 2006; Piquero, Gibson, Daigle, Leeper-Piquero, & Tibbetts, 2007; Serbin et al., 2004; Shepherd & Farrington, 2003).

While the exact nature of the association between antisocial behavior and poor physical health is not clear, one of the most straightforward explanations for this relationship is that individuals who engage in antisocial behavior are also more likely to engage in health-risk (e.g., substance abuse, HIV-risk behaviors) and injury-risk behaviors (e.g., driving while intoxicated, carrying guns, getting into physical fights) and are less likely to engage in health promoting behaviors (e.g., failure to attend regular check-

ups, poor diet) (Elliot, 1993). Unfortunately, the majority of research on this topic has excluded girls. Nonetheless, available research suggests that children who engage in antisocial and disruptive behavior are at a higher risk for accidents and unintentional injuries (Brehaut, Miller, Raina, & McGrail, 2003; Lalloo & Sheiham, 2003; Sabuncuoglu, 2007; Schwebel, Speltz, Jones, & Bardina, 2002). The link between antisocial behavior and poor health seems particularly strong when early behavioral problems include aggression and/or ADHD symptoms. For example, ADHD children are significantly more likely to be injured while riding a bike, to receive head injuries, be hospitalized for accidental poisoning and utilize medical services across multiple delivery settings (DiScala, Lescohier, Barthel, & Li, 1998; Leibson, Katusic, Barbaresi, Ransom, & O'Brien, 2001). With respect to early physical aggression, Tremblay (2002) found that boys who engaged in physical aggression from early childhood to late adolescence were at the highest risk of causing injuries to others and to themselves. Similarly, in the Cambridge Study of Delinquent Development, injuries at ages 16–18 and 27–32 were concentrated among males with a history of antisocial behavior and violence (Shepherd, Farrington, & Potts, 2002; Shepherd, Farrington, & Potts, 2004). Taken together, these findings suggest that childhood behavioral problems may signal risk for both future crime and poor health—at least among boys.

IS ANTISOCIAL BEHAVIOR ASSOCIATED WITH POOR PHYSICAL HEALTH AMONG GIRLS?

Girls who engage in aggressive and antisocial behavior are at increased risk for a number of social and emotional problems (Fergusson, Horwood, & Ridder, 2005; Kim-Cohen et al., 2003; Kratzer & Hodgins, 1997; Moffitt, Caspi, Harrington, & Milne, 2002; Wiesner, Kim, & Capaldi, 2005), with emerging research suggesting that their physical health may also be compromised. For example, girls with conduct disorder (versus controls) report poorer overall health, more discomfort, more health-risk behaviors as young adults, and an earlier onset of adult reproductive problems, even when controlling for demographic factors and pre-existing health history (Pajer, Kazmi, Gardner, & Wang, 2007). Similarly, among representative adult samples, women with, versus without, a history of antisocial behavior report higher rates of long-term physical health problems even after controlling for socio-demographic factors (Pajer et al., 2006).

Population-based evidence suggests that the link between antisocial behavior and poor physical health is strongest among males and females following the life-

course persistent pathway of antisocial behavior (Moffitt, 1993)—a pathway characterized by high-risk social and familial environments and the presence of early neuro-developmental risks among children. In addition to predictions regarding future involvement in criminal activity, Moffitt (2006b) recently predicted that “the life-course persistent antisocial individual will be at high risk in mid-life for poor physical [and mental] health, cardiovascular disease, and early disease morbidity and mortality” (p. 57). Consistent with this prediction, reports from the Dunedin Multidisciplinary Health and Development Study, a 32-year longitudinal study of a birth cohort of 1,000 New Zealanders, revealed that females (7.5% of the cohort) following an early onset and persistent pathway of antisocial behavior were experiencing the highest rates physical health problems. That is, they were more likely than the average female to have contracted Type 2 Herpes, smoke, be dependent on nicotine, and exhibit signs of chronic bronchitis, gum disease, and decayed tooth surfaces (Odgers et al., 2008). Like their female counterparts, males on the life-course persistent pathway were also at a greater risk for physical health problems by age 32 (Odgers et al., 2007a). These findings are relevant for juvenile justice populations, as adolescents following a life-course persistent pathway have the highest likelihood of ending up in these settings.

In sum, research supports a prospective link between early antisocial behavior and later physical health problems, which (1) has been consistently documented using both self-report and objective measures of health, (2) appears to be strongest for both males and females following a life-course persistent pathway of antisocial behavior, and (3) is often robust after controlling for a range of childhood risk and confounding factors. The following section reviews mechanisms through which antisocial behavior and poor health may be linked, with an emphasis on modes of transmission that may be especially relevant for adolescent female offenders.

CONNECTING RISKY FAMILY CONTEXTS TO HEALTH-RISK BEHAVIORS AND POOR PHYSICAL HEALTH

Common antecedents to both antisocial behavior and poor physical health involve early exposure to stressful life events, such as violence exposure and poverty. More specifically, there is a growing body of research documenting how constant adaptation to stressful and conflict-ridden home environments can over-activate neurobiological systems and increase the risk for physical and mental health problems across the lifespan (for a review see Gunnar & Quevedo, 2007). The influence of early stressors

may be particularly pronounced for juvenile offenders who are more likely than their non-incarcerated peers to have grown up in poverty, witnessed violence (both at home and in their communities), and experienced childhood maltreatment (Chauhan & Reppucci, 2009; Mason, Zimmerman, & Evans, 1998). Exposure to these types of stressful life events typically begins early and close to home as the families of children who exhibit severe and persistent antisocial behavior are characterized by high levels of family adversity, parental conflict, and an increased risk of childhood maltreatment (Moffitt, 2006a). Research with juvenile justice populations confirms this pattern of exposure to violence and maltreatment, with high rates of sexual and physical abuse documented among both male and female juvenile offenders (Dixon, Howie, & Starling, 2005). In addition, juvenile offenders are more likely to grow up in neighborhoods characterized by poverty, violence, and low social cohesion (Loeber & Farrington, 2000) and, as a result, may experience a type of double jeopardy as they accumulate exposures across multiple contexts (Schuck & Widom, 2005). This type of cumulative risk is likely to have consequences for poor physical health, as evidence suggests that unhealthy neighborhood contexts may also get under the skin and contribute to long-term health disorders (for a review see Taylor, Repetti, & Seeman, 1997).

Repetti et al. (2002) have proposed an integrated model for describing how growing up within these types of ‘risky families’ may compromise present and future health. Within this framework, risky families are characterized by conflict and aggression and by relationships that are cold, unsupportive, and neglectful. As illustrated in Fig. 1, a vulnerable child is hypothesized to be exposed to a cascade of risk that may contribute to both early behavior problems

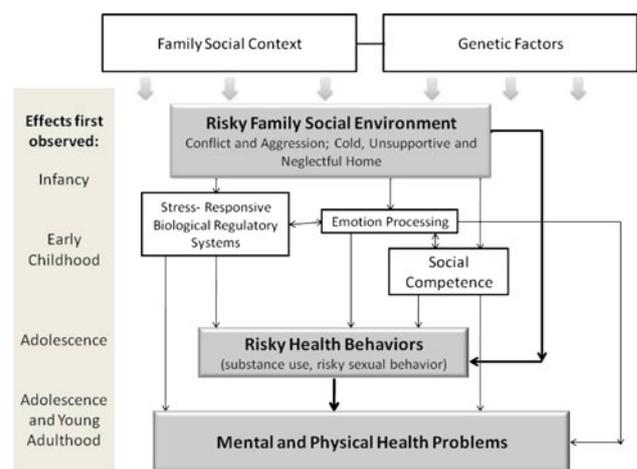


Fig. 1 Repetti’s et al.’s (2002) Risky Families Model depicting pathways to poor adult physical health originating in childhood. The present study tests pathways in the model illustrated by the *dark arrows* and *shaded boxes*

and poor health outcomes. According to this model, risky families contribute to, and create, vulnerabilities that put children at risk for poor social and emotional adjustment and lay the biological groundwork for long-term physical and mental health problems. In addition to directly placing children at risk for physical harm due to abuse and neglect, risky family contexts are hypothesized to get under the skin and disrupt children's homeostatic processes that are central to the maintenance of health. More specifically, children within these contexts must constantly adapt to stressful and threatening circumstances, which is believed to contribute to the build-up of allostatic load within the child. In other words, at a biological level, these contexts are believed to cause premature physiological aging of the organism (the child) and increase vulnerability to disease (McEwen & Stellar, 1993).

Throughout childhood, growing up in a risky family, including witnessing violence and experiencing maltreatment, has been linked to high emotional reactivity, lower social competencies, deficits in emotional understanding, and the failure to develop effective coping strategies within stressful situations (see Repetti et al., 2002, for a review). For example, population-based research has linked violence exposure to adolescent psychopathology for both males and females (Maikovich, Jaffee, Odgers, & Gallop, 2008; Schwab-Stone et al., 1999). With respect to domestic violence, a meta-analysis of 60 studies estimated a moderate relationship between exposure to domestic violence and childhood internalizing and externalizing disorders ($d = .48$ and $.47$, respectively) (Evans, Davies, & DiLillo, 2008). Support for a direct link between childhood maltreatment and poor adult physical health has also been documented in large epidemiological studies, where early exposure to abuse or household dysfunction has been found to independently predict a number of adult diseases, including cancer, chronic lung disease, heart disease, skeletal fractures, and liver disease (Felitti et al., 1998), as well as objective markers of immune function and allostatic load (Danese, Pariante, Caspi, Taylor, & Poulton, 2007). Exposure to child maltreatment has also been shown to increase the likelihood of health-risk behaviors in adolescence, including vulnerability to prostitution and early sexual contact (Wilson & Widom, 2008), suicide attempts (Dube et al., 2001) and substance abuse (Kilpatrick et al., 2000), with evidence that childhood maltreatment may be an especially powerful marker of later substance for females (Widom & White, 1997). Thus, children who grow up in a risky family are more likely to engage in a variety of health-risk behaviors, either as a means of self-medication or as a way of compensating for deficits in their social and emotional development (Repetti et al., 2002). The increased risk of health-risk behaviors among this population is concerning given that these types of social

and behavioral factors are known to contribute to chronic disease and premature death (Elliot, 1993) and are emerging during a time when many lifestyle habits are forming and may become resistant to change (Millstein, Petersen, & Nightingale, 1993). Thus, as shown in Fig. 1, growing up in a risky family context may influence adult health directly as well as indirectly via the development of health-risk behaviors in adolescence.

RISKY FAMILY CONTEXTS AND THE HEALTH OF FEMALE JUVENILE OFFENDERS

Repetti and colleagues' risky families model seems especially relevant to understanding the health of adolescent girls within the juvenile justice system given their pervasive history of experiencing and witnessing violence within family contexts (Cauffman, Feldman, Waterman, & Steiner, 1998; Moretti, Obsuth, Odgers, & Reebye, 2006). Girls in the juvenile system experience higher rates of maltreatment and abuse when compared to both females in the community and males in the juvenile justice system (for a review see Odgers & Moretti, 2002). In fact, the majority of girls in these settings have experienced severe physical and sexual victimization, neglect and/or experienced domestic violence (Dixon, Howie, & Starling, 2004), affirming that adolescent girls who come into contact with the juvenile justice system are embedded in some of the riskiest familial contexts. Unfortunately, exposure to maladaptive interpersonal relationships typically extends beyond childhood for girls with a history of antisocial behavior, as they continue to experience repeated conflict with parents, teachers, peers, and romantic partners throughout adolescence and into young adulthood (Pepler, Jiang, Craig, & Connolly, 2008; Pepler, Madsen, Webster, & Levene, 2005). This type of interpersonal conflict has also been linked to compromised physical health (De Vogli, Chandola, & Marmot, 2007; Wickrama et al., 2001) and is often internalized by young women (Quinn, 2005). To make matters worse, antisocial individuals often lack strong and cohesive social support networks that are known to buffer many of the ill-health consequences associated with exposure to stressful life events (Cohen, 2004).

It is also important to recognize that antisocial behavior does not occur in isolation. Rather, children who experience difficulties with antisocial behavior early in life are also more likely to experience co-occurring mental health and personality difficulties. This is especially true for young women in the juvenile justice system. For example, in adolescence and young adulthood, antisocial individuals are more likely than their same age peers to exhibit hostility and anger and are at an elevated risk for both negative affect and depressive symptoms; with evidence of greater comorbidity

between antisocial behavior and depression among girls versus boys (Keenan, Loeber, & Green, 1999). This is important because depression and related symptoms have been linked to cardiovascular disease, obesity, and related problems (Simon et al., 2006; Whooley, 2006). Likewise, hostility, a closely associated trait of antisocial behavior, predicts a number of adverse health outcomes, including cardiovascular disease (CVD), elevated glucose levels and diabetes (Knox, Weidner, Adelman, Stoney, & Ellison, 2004; Miller, Smith, Turner, Guijarro, & Hallet, 1996; Raikkonen, Matthews, Sutton-Tyrrell, & Kuller, 2004).

To summarize, growing up within a risky family context—defined here as witnessing domestic violence and experiencing childhood maltreatment—is believed to increase the risk for morbidity and mortality among these young women by (1) directly causing physical injuries as the result of violence exposure, (2) elevating the risk of disease via the biological embedding of early and ongoing familial and relationship conflict, (3) increasing the likelihood of health-risk behaviors such as substance use, and prostitution and self-harm as a means of coping with, or compensating for, repeated exposures to stressors and risky family contexts, and/or (4) contributing to the development of comorbid internalizing disorders and personality traits, which themselves have been linked to poor physical health.

GENDER-SPECIFIC PATHWAYS TO POOR HEALTH AND JUSTICE SYSTEM INVOLVEMENT

Research from criminology and psychology has identified gender-specific pathways into the juvenile justice system—some of which may be uniquely related to poor health status. For example, qualitative research has distilled gender-specific motivations and pathways to crime, such as running away from neglectful and abusive home environments (which itself has been classified as a status offense), or in the cases of prostitution and drug-related offenses, as means of survival following escape from unsafe family contexts (Acoca, 1998; Chesney-Lind & Pasko, 2004; Chesney-Lind & Shelden, 2004; Sommers & Baskin, 1994). With respect to physical health, this type of pathway into the justice system is likely to be associated with HIV-risk behaviors and sexually transmitted diseases (STDs), as well as physical injury (Crosby et al., 2004; Kelly, Bair, Baillargeon, & German, 2000; Staples-Horne, 2007). For example, in one sample, over 90% of detained female adolescents reported being sexually active and 75% reported having sexual intercourse before age 13 (Kelly et al., 2000). Another study of 197 detained girls found that approximately one-third of the sample reported having been pregnant, with over half of the sample reporting not using a condom during their last sexual encounter.

Moreover, 20% of these young women reported having sex with the intent to become pregnant, with 40% reporting sex with a casual partner in the last 2 months (Crosby et al., 2004). Given the high rates of HIV-risk behaviors documented in these studies, it is not surprising that females detained in the juvenile justice system experience a higher prevalence of STDs relative to detained male adolescents and non-offending females (Kelly et al., 2000; Staples-Horne, 2007). For example, Crosby et al. (2004) reported that 20% of girls within their sample tested positive for an STD following a medical examination. However, this may be a conservative estimate, as other studies have indicated that 20% of female detainees test positive for herpes and Chlamydia alone (Kelly et al., 2000; Staples-Horne, 2007).

Thus, for many girls, growing up in a risky family context played a key role in their trajectory toward justice system involvement. Rates of familial conflict and abuse among these young women are extremely high, with qualitative research illuminating the ways in which young girls are pushed out of their homes and into the very behaviors that led to their incarceration. In addition to encouraging health-risk behaviors, such as substance use, prostitution, and aggression through direct modeling, risky home environments are also believed to compromise the physical health of young women by taxing their neurobiological responses to stressors, increasing allostatic load, and dysregulating basic homeostatic processes.

THE PRESENT STUDY

The current study presents new data related to the prevalence of physical health problems among a population of incarcerated female adolescents during their incarceration and two years later as they make the transition to young adulthood in the community. First, we describe the risky family and neighborhood contexts that these young women are growing up in and document the prevalence injuries, injury risk, HIV risk, STDs, and early markers of poor health and disease among this sample. Second, we test whether severity of childhood maltreatment predicts poor physical health in adolescence and young adulthood. Finally, we test a specific pathway in the risky families model (depicted in grey in Fig. 1) by assessing whether the relationship between childhood maltreatment and poor adult physical health is mediated by involvement of health-risk behaviors in adolescence (e.g., HIV-risk behaviors, substance abuse, and aggression). This study is novel in that it (1) applies a multi-method approach that integrates self-report, physician gathered and biomarker data to determine physical health status and (2) is derived from one of the largest longitudinal samples of incarcerated girls that have been intensively assessed to date.

METHOD

Participants

Participants included 141 adolescent females interviewed while incarcerated in a correctional facility in the southeastern United States (Age: $M = 16.73$, $SD = 1.28$). The sample was racially/ethnically diverse, with 50.0% self-identifying as African American, 2.2% as Native American, 1.4% as Hispanic, and 8.0% as 'Other': the remaining 38.4% identified as Caucasian. Based on official Department of Justice reports, participants had committed an average of 13 offenses before they entered the correctional facility (Total Past Offenses: $M = 13.32$, $SD = 7.19$) and 81% had committed at least one violent offense (Total Violent Offenses: $M = 3.19$, $SD = 4.17$). To our knowledge, this is one of the largest in-depth studies of girls who have reached the deep-end of the juvenile justice system for which there is now longitudinal assessments available. Prior studies have typically excluded girls from the analyses (due to the fact that they were too small in number to analyze separately) or treated them as 'statistical noise' (Hoyt & Scherer, 1998).

Approximately two years after the initial interview, in-person interviews were conducted with 78.5% ($N = 102$) (Age: $M = 18.85$, $SD = 1.53$) of eligible study members who had been released into the community for at least 6 months ($N = 130$, Timeout: $M = 20$ months).

Procedure

All female adolescents sentenced to custody in a large southeastern state during a 14-month period were approached to participate in the first wave of this study. Approximately 93% of the females participated in the research. Active voluntary consent was obtained from participants and active parental consent was obtained for all girls under the age of 18. Following their sentencing, each participant underwent a 30-day assessment, which included psychological and educational testing, in addition to a full medical examination completed by a physician. Each participant also underwent approximately 6–8 h of individual assessments, including semi-structured clinical interviews, computerized diagnostic assessments, and a self-report protocol. Approximately two years after the initial interview, study participants were interviewed in the community. At this time, participants completed a 2–3 h in-person assessment focused on re-entry into the community and mental and physical health functioning. Attrition analyses revealed no significant differences between those who did versus did not (28% of the sample) participate in the W2 interview with respect to age, IQ, internalizing and externalizing psychopathology, or

number of documented past offenses (average Cohen's $d = 0.01$ across these variables).

Confidentiality was assured to all participants. A Federal Certificate of Confidentiality from the Department of Health and Human Services was obtained to ensure that investigators could not be forced (e.g., by court subpoena) to disclose information that may identify participants in any federal, state, or local civil, criminal, administrative, legislative, or other proceedings. Protocols were approved by the Institutional Review Boards at the participating university as well as by the Department of Juvenile Justice.

Measures

Childhood sexual abuse was assessed using the Record of Maltreatment Experiences-Revised (ROME) (McGee, Wolfe, Yuen, & Wilson, 1995; Wolfe & McGee, 1994). The ROME was coded by psychology graduate students (PhD/MA level) based on case-file information (e.g., psychological assessment, social worker report, educational assessment, medical interview, and results from 30-day intake assessment). We report the presence of confirmed sexual abuse (0 = No, 1 = Yes). McGee et al. (1995) have reported acceptable levels of inter-rater reliability for this rating scheme, ranging from .79 for neglect to .96 for sexual abuse.

Exposure to *physical abuse* and *witnessing domestic violence* were assessed using the Family Background Questionnaire (FBQ) (McGee, Wolfe, & Wilson, 1997). The FBQ is a self-report version of the ROME and includes global severity ratings for multiple types of maltreatment experienced since childhood. The child physical abuse scale contained three items ($\alpha = .77$), including: '...hit, kicked or punched you' and '...threw you against something'. The exposure to domestic violence scale contained four items ($\alpha = .89$), such as '...beat up her/his partner' and 'threatened her/his partner with a gun'. All items were answered on a 4-point scale, indicating the frequency of each experience within the participant's relationships (0 = never happened, 1 = happened a few times, 2 = happened sometimes, 3 = happened often or very often). Ratings were provided for both the primary maternal and paternal figure. McGee et al. (1997) reported retest reliabilities of .70 for this instrument. We report the percentage of study members exposed to each of these forms of abuse at least 'a few times'. A composite score indexing 'severity of childhood victimization' was created by indexing the number of different types of abuse experienced, including exposure to domestic violence, child physical abuse, and child sexual abuse. We also created an abuse chronicity score that indexed how frequently each form of abuse occurred. The severity and chronicity summary measures were highly correlated

($r = .65$). Due to the high correlation between the measures, and the fact that similar results were obtained regardless of whether the severity or chronicity measure was used, we report results using only the severity of childhood victimization score.

Experiences of *physical abuse in adolescence*, such as being ‘slapped, kicked, hit, bit or beaten up’, ‘hit with an object’, and ‘victimized by a romantic partner’, were assessed using a modified version of the Conflict Tactics Scale Revised (CTS-R) (Straus, 1979). The CTS-R assessed exposure to physical violence over the past 6 months. Responses were recorded on a 4-point scale (1 = Never to 4 = Always). The CTS-R scale in this sample demonstrated acceptable levels of reliability ($\alpha = .92$) and the factor structure of the CTS-R was supported in prior research using Confirmatory Factor Analysis (Odgers et al., 2007b).

Fear of violence and witnessing violence were measured using a Community Violence Scale (CVM) that assessed exposure to violence across three contexts (home, school, and neighborhood) using a 3-point scale (0 = never, 1 = sometimes, 3 = always). CVM psychometrics in this sample are reported elsewhere (Chauhan & Reppucci, 2009). Here, we report the percentage of individuals who reported that they are sometimes or always ‘afraid of being physically attacked’ ($\alpha = .69$), ‘have witnessed someone get stabbed or shot’ and ‘have seen guns being shot’ in their home, school and/or neighborhood in both adolescence ($\alpha = .72$) and young adulthood ($\alpha = .60$).

Injury risk was assessed in adolescence and young adulthood using items from the Life Events Checklist (Brand & Johnson, 1982) and a modified version of the Self-Report of Delinquency (Elliot, Huizinga, & Menard, 1989). Five items representing injury risk were derived from these scales, including ‘being involved in a vehicle accident’, ‘driving while drunk or high’, ‘carrying a gun’, ‘being in a situation with not enough food, water, clothing...’, and ‘illness or injury that may have caused death’. *Physical injuries* were assessed in adolescence as part of a physical examination and medical history screen conducted by a physician. In young adulthood, we also asked whether the study member had been hospitalized for an illness, accident, or injury, and whether they had attempted or had threatened suicide since their release from custody.

HIV-risk behaviors were assessed during adolescence as part of the participant’s physical health and medical history examination. Participants reported their number of sexual partners, condom use, and whether they had engaged in high-risk sexual behaviors (e.g., high-risk sexual partners, trading sex for money, intravenous drug use). At the follow-up interview, participants reported on whether they had engaged in unprotected sex since their release from custody.

Substance abuse in adolescence was assessed at intake by the Department of Juvenile Justice clinical staff using a drug and alcohol questionnaire. Study members reported on the number of times that they had used the following drugs in the past year and in the past month (excluding incarceration): alcohol, marijuana, cocaine, crack, inhalants, stimulants, depressants, hallucinogens, and opiates. Clinicians also assessed physiological symptoms related to DSM-IV substance abuse and dependency criteria, including withdrawal symptoms and whether drug use interfered with daily functioning and relationships. In subsequent analyses we use a summary score of the number of substances that the study member had used six or more times in the past year or four or more times in the last month ($M = 1.37$, $SD = 1.68$). Department of Justice clinician ratings indicated that approximately 53.9% of the sample met diagnostic criteria for substance dependence or abuse.

Sexually transmitted diseases (STD) and infections were assessed as part of a gynecological examination conducted by a physician. Study members were tested for sexually transmitted infections (STI) (including trichomonas, vaginosis, pediculosis, and monilia), chlamydia, gonorrhea, and/or pelvic inflammatory disease diagnosed via blood tests and medical examinations. Participants also reported on their history of STD treatment and diagnoses. At the follow-up interview, participants reported whether they had contracted an STD since their release from custody.

General health indicators such as body mass index (BMI) and asthma were assessed in adolescence by a physician who measured the study member’s height, weight, and respiratory functioning. In young adulthood, physical health symptoms were assessed via self-report using the following items from the Adult Self Report (ASR: Achenbach & Rescorla, 2003): ‘tired for no reason’, ‘aches and pains’, ‘headaches’ and ‘numbness’ ($\alpha = .54$). *Family history* information was gathered by physicians and graduate-level researchers as part of a medical history exam and briefly family history screen; participants were asked to report if any of their family members had a history of diabetes, heart disease, mental illness, substance use, and/or criminal convictions.

RESULTS

Risky Relationship Contexts: From Childhood to Young Adulthood

As expected, rates of victimization and violence exposure were high across childhood, adolescence (while incarcerated), and during the transition to young adulthood (while

Table 1 Prevalence of victimization in childhood, adolescence, and young adulthood

Exposure to violence	Prevalence (%)
Childhood maltreatment	
Confirmed childhood sexual abuse	47.6
Victim of physical abuse	65.8
Witnessed domestic abuse	47.9
% victimized in childhood	91.1
Adolescent victimization	
Slapped, kicked, hit, bit, attacked, or beaten up	67.2
Attacked with an object	43.1
Victim of physical violence by romantic partner	56.2
% victimized in adolescence	80.0
Young adulthood victimization	
Kicked, bit, or attacked with a fist	39.6
Attacked with a weapon	30.4
Body touched in a way you didn't want to be touched	21.6
Victim of physical violence by romantic partner	61.6
% victimized in young adulthood	79.8
% experiencing lifetime victimization	100.0

in the community). As shown in Table 1, over 90% of the sample had experienced at least one form of abuse or exposure to domestic violence during childhood, with 80% of the sample experiencing victimization during adolescence and young adulthood. A summary of abuse experiences from childhood to adulthood reveals that 100% of the sample experienced at least one form of physical abuse throughout their lifetime, which means that experiencing victimization was a constant within this sample.

As shown in Table 2, these young women were also embedded within schools and communities characterized by high rates of violence, particularly during adolescence. Findings from this table illustrate two main points with respect to violence exposure. First, the majority of these young women lived in fear of being physically attacked, with 56.4% of the sample reporting that they were afraid of being physically victimized in their home, school, or neighborhood during adolescence. Although the percentage of young women living in fear across these contexts dropped to 35.1% in young adulthood, in absolute terms this means that over one-third of these young women continued to feel unsafe within their homes and communities. Second, rates of witnessing serious forms of violence, such as seeing 'someone get stabbed or shot' or 'seeing guns being shot', were incredibly high, with over 80% of the sample reporting these experiences in

Table 2 Exposure to violence, injuries, and hospitalizations in adolescence and young adulthood

	Prevalence (%) Wave 1 (adolescence)	Prevalence (%) Wave 2 (early adulthood)
Fear of being physically attacked		
At home	16.3	7.0
At school	36.9	12.0
In neighborhood	47.3	27.0
% afraid of violence in <i>one or more</i> contexts	56.4	35.1
Seen someone get stabbed or shot		
At home	7.6	1.0
At school	31.6	4.0
An neighborhood	66.1	33.0
Seen guns being shot		
At home	14.5	3.0
At school	22.9	5.3
In neighborhood	79.5	40.0
% witnessing violence in <i>one or more</i> contexts	83.8	48.6
Injury risk		
Vehicle accident	53.1	22.5
Driven while drunk or high	43.3	18.6
Carried a gun	42.5	5.0
Been in a situation with not enough food, water, clothing, or not having a home	22.2	12.7
Illness or injury that may have caused death	18.9	8.8
% with injury risk behaviors	72.3	43.2
Type of injury		
Fracture	32.8	–
Self-injury	20.8	27.5
Head injury	18.4	–
Unconscious	17.6	–
Blunt trauma	14.5	–
Stab wound	13.6	–
Gunshot wound	4.8	–
% with a physical injury	60.8	
Hospitalizations and self-harm		
Hospitalized for an illness since release		21.6
Hospitalized for an accident or injury since release		25.3
Attempted suicide (threat or attempt) since release		21.6

adolescence, and close to 50% of the sample reporting that they continued to witness serious violence first-hand in young adulthood.

Incarcerated Girls ‘Live on the Edge’—And Get Injured While Doing So

Prevalence rates of injury and risk for injury are presented in Table 2 and illustrate the high rates of risk-taking behaviors and injuries among this population. For example, over 50% of the girls reported being involved in a motor vehicle accident, with over 40% of girls reporting that they had driven while drunk or high and carried a gun during adolescence. Taken together, 60.8% of the girls reported experiencing at least one of the eight types of injuries listed in Table 2. The percentage of females engaging in injury risk behaviors decreased between adolescence and young adulthood (72.3% versus 43.2%, respectively). However, close to 1 in 3 females reported engaging in some type of self-harm behavior in young adulthood and 25.3% of the young women were hospitalized for an accident or injury since their release from custody.

Almost Half of Incarcerated Girls Tested Positive for a Sexually Transmitted Disease or Infection

Rates of HIV-risk behaviors and sexually transmitted disease and infection are reported in Table 3 and illustrate two main findings. First, the majority of females reported engaging in HIV-risk behaviors during adolescence: over 50% reported engaging in sexual intercourse with more than three partners, with approximately 20% of girls reporting that they did not use a condom while sexually active or that their sexual partner(s) were “high risk”. Second, during adolescence, almost half of the girls (48.4%) tested positive for at least one of the STDs or STIs listed in Table 3. With respect to lifetime prevalence, close to 60% of the girls either tested positive for an infection during the exam or reported to their physician that they had tested positive for an STD or STI in the past.

Incarcerated Girls Are at Heightened Risk for Cardiovascular and Respiratory Illnesses

As illustrated in Table 3, even at this young age, the majority of the sample (57.4%) was classified as ‘obese or overweight’ based on their BMI and guidelines set by the Center for Disease Control and over 30% of the girls suffered from asthma. Table 3 also details family history information and indicates that over 50% of the girls had a family history of diabetes and 35% had a family history of heart disease. With respect to mental health, close to 70% of fathers had been convicted or arrested and the majority had experienced difficulties with substance use.

Table 3 HIV-risk behaviors, STDs, and early disease markers

	Prevalence (%)
HIV-risk behaviors	
Multiple (3+) sex partners in adolescence	54.6
No condom use in adolescence	23.1
High-risk sex partner in adolescence	17.6
Trading sex for money in adolescence	9.7
IV drug use in adolescence	2.4
Engaged in unprotected sex in young adulthood ^a	61.6
STD infections	
ST infection ^b	42.3
Chlamydia ^b	7.3
Gonorrhea ^b	2.4
Pelvic inflammatory disease ^b	7.3
Contracted an STD since release ^a	6.9
Early disease markers	
Overweight or obese	57.4
Asthma	31.2
Family history of disease	
Diabetes	54.5
Heart disease	25.4
Maternal history of mental health problems	
Substance use problem	34.4
Convicted or arrested	38.6
History of mental illness	20.5
Paternal history of mental health problems	
Substance use problem	56.9
Convicted or arrested	68.5
History of mental illness	15.0

^a Assessed at Wave 2 via self-report

^b Assessed at Wave 1 via a medical examination

Childhood Victimization Predicts Poor Health in Adolescence and Young Adulthood

Tables 4 and 5 present the results from a series of multiple regression analyses predicting physical health outcomes in adolescence and young adulthood respectively from childhood victimization. Based on the sample distributions of the outcome measures, logistic (for dichotomous outcomes) or Poisson regressions (for count outcomes) were used to estimate relationships severity of childhood victimization and health outcomes. Because virtually all of the girls in this sample experienced some form of victimization in childhood (>90%), we ask whether severity of early childhood victimization—indexed by a summary of exposure to domestic violence and experiences of physical and/or sexual abuse—predicts poor health among this high-risk population.

Table 4 Regression model results of childhood victimization predicting poor physical health in *adolescence*

	Injuries		Sexually transmitted diseases		General health	
	Injury risk	Number of injuries	HIV-risk behaviors	Tested positive for an STD?	Asthma	Overweight
Severity of childhood victimization	IRR = 1.22** (1.06–1.40)	IRR = 1.23** (1.01–1.50)	IRR = 1.05 (0.87–1.27)	OR = 0.82 (0.56–1.22)	OR = 0.87 (0.60–1.26)	1.05 (0.74–1.50)

Based on the sample distributions of the outcome measures, logistic (for dichotomous outcomes) or Poisson regressions (for count outcomes) were used to estimate relationships severity of childhood victimization and adolescent outcomes. Similar results were obtained when chronicity of abuse (how frequently the youth was exposed to domestic violence and childhood maltreatment) was used

IRR incident rate ratio, OR odds ratio; () = 95% confidence intervals

* $p > .05$; ** $p < .01$

Table 5 Regression model results of childhood victimization predicting poor physical health in *young adulthood*

	Injuries		Sexually transmitted diseases		Poor health	
	Injury risk	Self-harm	Engaged in unprotected sex?	New STD diagnosis?	Physical health symptoms	Hospitalized
Severity of childhood victimization	IRR = 1.16 (0.90–1.50)	OR = 1.98* (1.15–3.41)	OR = 2.09** (1.28–3.41)	OR = 0.91 (0.42–1.99)	IRR = 1.30** (1.10–1.53)	OR = 1.64* (1.00–2.69)

Based on the sample distributions of the outcome measures, logistic (for dichotomous outcomes) or Poisson regressions (for count outcomes) were used to estimate relationships severity of childhood victimization and young adult outcomes. Similar results were obtained when chronicity of abuse (how frequently the youth was exposed to domestic violence and childhood maltreatment) was used

IRR incident rate ratio, OR odds ratio, () = 95% confidence intervals

* $p > .05$; ** $p < .01$

The findings presented in Table 4 illustrate that severity of childhood victimization significantly predicted injury risk and number of injuries in adolescence, but was not related to HIV risk, testing positive for an STD, or other general disease markers. For each one unit increase in victimization severity (here meaning for each additional type of maltreatment the individual was exposed to in childhood), the rate of injury risk and injuries increased by a factor of 1.22 and 1.23, respectively.

The results presented in Table 5 demonstrate that severity of childhood victimization significantly predicted self-harm behavior, engagement in unprotected sex, physical health symptoms, and the number of hospitalizations in young adulthood. No relationship was observed between severity of childhood victimization and injury risk or new STD diagnoses.

Figure 2 displays results from a structural equation model and indicate that the relationship between growing up in a risky family context (as indexed by experiencing physical abuse, sexual abuse, and/or witnessing domestic violence) and poor health in young adulthood (as indexed by a summary of the adult health outcomes listed in Table 5) is fully mediated by health-risk behaviors in adolescence, including substance use, HIV-risk behaviors, and aggression.

DISCUSSION

Historically referred to as the “forgotten few” within the juvenile justice system (Bergsmann, 1989), the rising numbers of girls entering juvenile corrections have caused researchers and policy-makers alike to begin looking more closely at the health needs of this population (Synder & Sickmund, 2006). The present study contributes to what is known about the physical health of girls in the justice system in four ways.

First, this study took stock of incarcerated adolescent females’ physical health problems via official records, physician administered medical examinations, and in-depth interviews. Results highlighted the diverse range and high rates of physical health problems among this sample during both adolescence and young adulthood. One of the most striking findings is that physical injuries, obesity, and STDs were the norm during adolescence, with 50% or more of the population meeting criteria for each of these health problems. Also concerning is the fact that the majority of the sample (57.4%) was classified as ‘obese or overweight’ based on their BMI and guidelines set by the Center for Disease Control. In addition, medical histories documented that 1 in 3 of these young women were suffering from asthma, as compared to the 12.5% of adolescent girls in the

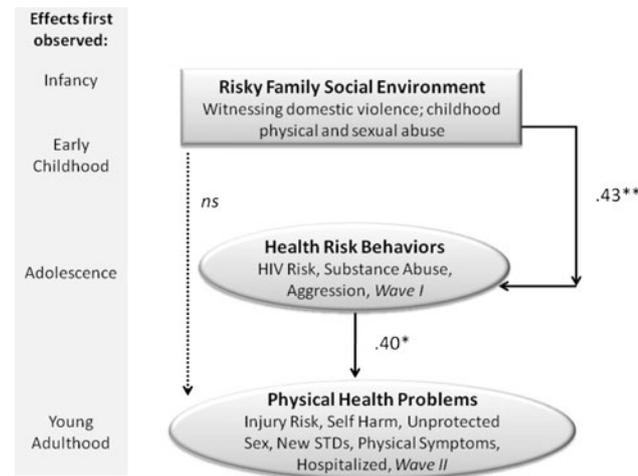


Fig. 2 Structural equation model predicting direct and indirect pathways from risky family contexts to physical health symptoms in young adulthood. The model was fit in a structural equation modeling (SEM) framework using AMOS 17.0. A simplified version of the full SEM is presented in the figure. ‘Risky Family Social Environment’ was marked by a composite of witnessing domestic violence, childhood physical, and sexual abuse. ‘Health-risk behaviors’ in adolescence was represented by a latent variable measured by summary scores of HIV-risk behaviors, YSR Aggression Subscale and Substance Abuse Total Score. ‘Poor Physical Health’ in Young Adulthood was a latent variable measured by Injury Risk Total Score, Self Harm, Unprotected Sex, ASR Physical Symptoms Score, and Hospitalizations. The relationship between risky family background and physical health problems in young adulthood was fully mediated by health-risk behaviors in adolescence (direct effect (c), $\beta = .21, p < .05$; mediated effect (c’), $\beta = .04, p = .79$). Model fit: $\chi^2 = 56.6, df = 33, p = .006$; RMSEA = 0.07, CFI = .84. * $p > .05$, ** $p < .01$

United States who report current asthma, and 20.3% of high-school age students who report lifetime asthma (Eaton et al., 2008). These two early health indicators are important as childhood obesity foreshadows a wide range of adverse cardiovascular outcomes and other chronic illnesses (Weiss et al., 2004). Moreover, asthma has been identified as a chronic and costly health problem, especially for children growing up in deprived contexts (Chen & Matthews, 2002). Family history data also indicated that 55% of the girls had a family history of diabetes; this is concerning given the epidemiologic studies demonstrating that people with one or more first-degree relatives who are affected by diabetes are 2 to 6 times as likely to have the disease compared to people who have no affected relatives (Harrison et al., 2003). A quarter of the girls also reported a family history of heart disease, which is also known to increase the risk for cardiovascular problems later in life (Lloyd-Jones et al., 2004). Thus, even at this early age, these young women were either experiencing or were at heightened risk for a number of serious and costly medical problems.

The health problems experienced by these young women also persisted into young adulthood, where 40% continued

to engage in injury-risk behaviors and close to 30% reported engaging in self-harm behavior. Hospitalization rates during young adulthood provide further evidence of the ongoing health-risk, with a quarter of the sample being hospitalized for an accident, illness, or injury since their release from custody. These statistics are especially troubling when one considers that this group should be enjoying one of the healthiest periods of their lives. Moreover, programming and treatment options for improving the health of young women in the juvenile justice system are sorely lacking, despite their clear physical health problems and vulnerabilities (Hipwell & Loeber, 2006).

Second, results from this study support prior research documenting that these young women are embedded in some of the ‘riskiest’ familial environments. This finding is important given the proposal that growing up within risky family contexts may be one way in which early life events ‘get under the skin’ and compromise future physical health (Repetti et al., 2002). This study extended the risky families model into a sample of young women where exposure to childhood victimization was the norm; over 90% of the girls had been exposed to domestic violence and/or had experienced abuse during childhood. However, even at this most extreme end of the distribution, severity of childhood victimization appeared to have downstream effects on physical health.

Findings also highlight the multiple embedding of risk for violence exposure within family, school, and neighborhood contexts. In adolescence, 83.8% of girls witnessed someone being stabbed or shot, or had seen guns being shot, with 40% of the sample continuing to witness these same events during young adulthood. Future research is required to examine the independent and joint contributions of growing up within both risky family and deprived neighborhood contexts. Prior evidence suggests that neighborhood contexts may moderate the effects of childhood maltreatment on adult criminal involvement (Schuck & Widom, 2005). However, it is not yet clear how neighborhood and risky family contexts interact across development to influence other types of adult outcomes, including adult physical health.

Third, our findings support a link between early experiences of childhood victimization and poor physical health during both adolescence and young adulthood. Although victimization in childhood was virtually constant within the sample, increased severity of victimization experiences predicted injury and injury risk in adolescence. Severity of childhood victimization also predicted self-harm, HIV-risk behaviors, physical symptoms and hospitalizations in young adulthood. These findings are somewhat surprising in that, even among this relatively homogenous sample of economically marginalized and violence-exposed females, there was evidence of a dose–response relationship

between childhood victimization and poor health. The increased health-risk associated with victimization was not inconsequential: for many high-cost physical health outcomes (e.g., hospitalizations, self-harm, and HIV-risk behavior), we observed a doubling of the odds and incident rate ratios for one unit increases in victimization severity. The dose–response relationship between early victimization and long-term health outcomes aligns with the core tenants of the risky families model and supports the idea that the transmission of risk for poor adult health may be linked to the severity of these early experiences.

Fourth, results from the SEM framework indicate that the relationship between growing up in a risky family context and poor adult health is fully mediated by health-risk behaviors in adolescence: the direct effect of childhood victimization on adult physical health was significantly reduced (from $\beta = .21, p < .05$ to $\beta = .04, p = .79$) once health-risk behaviors were added to the model. The transmission of risk for poor health through the development of health-risk behaviors in adolescence, such as substance use and promiscuity, is consistent with expectations from the risky families model.

Repetti et al. (2002) provide a comprehensive review of the dimensions of a risky family environment that are known to increase the risk for adolescent substance use and engagement in risky sexual behavior. In doing so, they propose that involvement in these types of health-risk behaviors may act as a means of compensating for deficiencies in biological, social, and emotional functioning that have emerged as a result of growing up in a risky family context. That is, these behaviors are believed to help the adolescent manage their negative emotions and gain social acceptance, despite their deficits in emotional coping and social skills. On a biological level, involvement in these types of behaviors may act as a form of self-medication. For example, substance use in adolescence may be an attempt to regulate the serotonergic pathways that have been disrupted as these young women have repeatedly tried to adapt to stressors in the home environment. The lack of a direct effect between growing up in a risky family context is not consistent with the risky families model or research from epidemiological studies that has established an independent link between child maltreatment and markers of physical health. Future research is required to replicate the fully mediated pathway that we observed in this sample; such research should include more comprehensive measures of both risky family environments and adult physical health status within larger samples.

Limitations

This study also has limitations. First, this research informs our understanding of the profiles of physical health-risk

among incarcerated female adolescents. However, it is not able to answer questions regarding sex differences. Future research is required in samples that include physical health assessments of both males and females.

Second, it is not clear when the relationship between exposure to risky family contexts and poor health begins or whether it is causal. It is possible that both childhood victimization and poor physical health are caused by a common set of risk factors (e.g., parental antisocial behavior, low socio-economic status). In addition, due to the retrospective reporting of childhood exposure to domestic violence and maltreatment, we were unable to pinpoint the exact age at which children experienced these types of stressors. In the present study, we demonstrated a dose–response relationship between severity of childhood victimization and poor adult health in an economically marginalized and relatively homogenous population. This research design helps to rule out the possibility that socio-economic factors underlie observed individual differences in physical health status—one of the largest confounds in health disparities research. Nonetheless, stronger tests of causal models linking early maltreatment to future health are needed. New population-based research supports an independent link between childhood exposure to physical abuse and adult biomarkers of disease, such as inflammation (Danese et al., 2007). However, well-controlled replications of these findings within high-risk populations are required.

Third, the present study was rare in that it included a representative sample of females sentenced to custody in a large state. However, it is unclear whether the prevalence rates of violence exposure and health risk will generalize to other parts of the country and beyond.

Implications for Research, Policy, and Practice

With the limitations of this study in mind, the implications of these findings for policy and practice can be considered. From a public health perspective, our findings support the need to better understand the links between childhood victimization, antisocial behavior, and poor physical health. Ideally, such efforts will consider the whole child and begin to explore opportunities for jointly targeting behavioral *and* physical health problems. Promising examples of randomized controlled trials are already underway in this area with children, with evidence that physician-administered interventions may lower rates of aggression and attention problems, as well as reduce fight-related injuries requiring medical care (Borowsky, Mozayeny, Stuenkel, & Ireland, 2004). Such findings reinforce the need to consider the ‘whole adolescent’ and avoid treating mental health and physical health problems in isolation.

Our findings also reinforce the call to action issued by Physicians for Human Rights to improve screening, diagnosis, and treatment of medical issues within the juvenile justice system. The health risks that these young women face are not unidimensional, but rather encompass a wide range of mental, sexual, and physical health conditions. Thus, it is imperative that efforts to reform health care in this area include broad enough screenings to detect the numerous conditions that pose a threat to this population's health, but also include screenings that are sensitive enough to accurately identify specific medical conditions (Crosby et al., 2004; Dixon et al., 2004). Recommended assessments include (but should not be limited to) screenings for mental, medical, dental, allergic conditions, drug use, disease, need for medication or treatment, immunization history, vision and hearing tests, scoliosis test, breast examinations, gynecological exams, physical and sexual abuse, and witnessing violence. More specifically, this research supports prior calls to increase HIV screening and education programs within correctional settings (Teplin et al., 2005).

These recommendations are also consistent with the guidelines provided by American Academy of Pediatrics (AAP) Committee on Adolescence (Kaplan et al., 2001), which reinforce the need to provide children and adolescents who are confined to juvenile facilities with a quality of care that is at least equivalent to accepted standards of care in the community. Recommended services include preventative pediatric and adolescent health care, complete medical histories and physical and dental examinations as well as other medical services that are deemed appropriate. The AAP also recommends using incarceration periods as a window of opportunity to provide health maintenance for marginalized adolescents via the delivery of developmentally appropriate health services. In doing so, they encourage the involvement of pediatricians and adolescent health care specialists in the planning and delivery of medical services within the justice system. Although recommendations from the National Commission on Correctional Health Care (1999) regarding medical screening for incarcerated adolescents at time of intake into juvenile correctional facilities have existed for over a decade, many facilities fail to immediately screen girls for mental and physical health disorders. Instead, services are often provided as-needed, a protocol that, based on our findings, would result in a number of unrecognized and untreated health problems.

Results from our prospective longitudinal study also reinforce the need to develop effective strategies for monitoring the health care needs of girls in the juvenile justice system as they transition back into the community. This type of re-entry focus is important given the high rates of physical health problems and lack of access to routine

health care among this population. If successful, this type of reform could make access to preventative medical care and treatment a potential benefit associated with spending time within a state-run facility during adolescence. Ideally, effective reform would provide a window of opportunity to reduce the future health burden among this population by delivering services that may have otherwise not been received. In the meantime, the health crisis among adolescent girls in the justice system continues, with evidence that severity of childhood victimization signals the development of health-risk behaviors in adolescence and poor physical health as these young women struggle to make the transition to young adulthood and back into their communities.

Acknowledgments This research was supported by grants from the Canadian Institutes of Health Research (#54020 and #84567) and the Virginia Department of Juvenile Justice. Candice L. Odgers is a William T. Grant Scholar. The authors thank Co-Investigators Marlene Moretti and Dick Reppucci, the Gender and Aggression Research Team-Virginia Site (Mandi Burnette, Preeti Chauhan, Emily Marston and Barbara Oudekerk), those at the Virginia Department of Juvenile Justice that supported this research (Drs. Dennis Waite, Dale Schulz and Molly Alcott), and the young women who participated in this study.

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