



Using structural equation modeling to assess the impact of factors on sexual risk and delinquent behavior in Dutch female offenders



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ABSTRACT

Research shows that juvenile female offenders have a higher prevalence rate of sexual risk behaviors than girls from the general population and that similar factors underlie both SRBs and delinquent behavior. Contributing to findings derived from young female delinquent samples, this study examines the impact of risk factors on delinquent behaviors and sexual risk behaviors in 146 delinquent girls (12 to 18 years) in outpatient forensic treatment. While controlling for ethnicity, results from structural equation modeling through bootstrapping showed that sexual risk behaviors (explained variance 26%) were predicted by the number of negative life events, peer rejection, and substance use, whereas the number of previous convictions and treatment dropout were predictive of delinquent behavior (explained variance 14.1%). Affiliation with deviant peers, parental monitoring, and conduct problems did not contribute to the explained variance in both outcome measures. These findings will be elaborated on in the discussion.

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1. Introduction

Public health research suggest that sexual risk behaviors are common among (incarcerated) delinquent adolescent girls (Dembo, Belenko, Childs, Wareham, & Schmeidler, 2009b; Khurana, Cooksey, & Gavazzi, 2011; Romero et al., 2007). In several studies, sexual risk behaviors are operationalized as having unprotected sex, teenage pregnancies, sexually transmitted infections, and multiple sexual partners, often with an older partner (e.g., Levie & Chamberlain, 2004; Teplin et al., 2005). A longitudinal study by Romero et al. (2007) among 316 American female adolescent detainees (aged 10–18 years) revealed increasing percentages of girls having unprotected sex (83.7% at intake and 94.0% at 3.3 years follow-up). Moreover, persistent sexual risk behaviors (in particular having multiple sex partners) were observed in 96.6% of these girls, with as a consequence higher rates of sexually transmitted infections (STIs) and unintended teenage pregnancies (Khurana et al., 2011; Lawrence, Snodgrass, Robertson & Baird-Thomas, 2008). These trends were not observed in the general population. In contrast, a decrease of 17% in unintended pregnancies was observed in the general population worldwide (Singh, Sedgh & Hussain, 2010). In western European

countries the decline was even higher (29%), resulting from increased levels of contraceptive use and a higher average age at first intercourse. The present study sets out to examine the risk factors associated with both sexual risk behaviors and delinquent behavior in a forensic outpatient sample of adolescent females, while controlling for ethnicity. The latter is of particular importance since, within the female offender population, racial variation in sexual risk behaviors has been found in several studies (Dembo, Belenko, Childs, & Wareham, 2009a; Dembo et al., 2009b; Childs, Dembo, Belenko, Sullivan & Cochran, 2011; Khurana et al., 2011; Lantôt & Smith, 2001): African American young women in the juvenile justice system showed a higher rate of sexual risk behaviors. In particular they more frequently tested positive for STIs, reported more pregnancies than their European American counterparts and were pregnant at a younger age (15 years versus 16 years). Taken together, these findings suggest that the combination of delinquent involvement and sexual risk behavior among (ethnic minority) adolescent girls represents a serious health problem for this vulnerable population of youth. All the more because female adolescents with juvenile justice involvement are also more likely to show higher rates of sexual risk behaviors during young adulthood (Levie, Van Ryzin & Chamberlain, 2015). Identifying the risk factors associated with sexual risk behaviors is needed to obtain an in-depth understanding of these behaviors in young female delinquents which is necessary to tailor intervention modules to specific treatment needs among these high risk girls.

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2. Risk factors predictive of risky sexual behavior and delinquent behavior

Leading public health theories (e.g., Social Action Theory. Ewart, 1991; Problem Behavior Theory. Jessor, 1991) suggest that youth problem behaviors are interrelated. That is, youngsters who engage in one form of problem behavior are likely to engage in other forms of problem behaviors (LeBlanc & Bouthillier, 2003). The *Problem Behavior Syndrome* (PBS) has been introduced by Jessor (1991) to describe the phenomenon of interrelated problem behaviors. Despite the fact that PBS has not been the central outcome measure in most of the adolescent girls' studies, quite some research has been conducted on either delinquent behavior or sexual risk behavior in delinquent samples of female adolescents. Most of these studies are US-based, but in general their results corroborate findings from studies conducted elsewhere. From the US-studies, three research groups stand out because they have published most of the research done on sexual risk behaviors and delinquent behavior in female juvenile offenders. Their findings provide a good overview of the latest developments in the field of risky sexual and delinquent behaviors in young girls. The results from the studies of these groups will be summarized briefly in the next paragraphs.

The first group consists of researchers from the *Oregon Social Learning Center*. They regularly publish on sexual risk behaviors in girls referred to the Treatment Foster Care Oregon (formerly known as *Multidimensional Treatment Foster Care - MTFC*), a behavioral treatment alternative to residential placement for youth who have problems with chronic delinquency. Their studies showed that negative life events such as childhood trauma (i.e., sexual and physical abuse) (Levie et al., 2015; Smith, Leve & Chamberlain, 2006) and a young age of first arrest, significantly increased self-reported sexual risk behaviors (such as having unsafe sex) and self-reported delinquency, as well as more objectively assessed delinquency, such as days locked in and new arrests (Levie & Chamberlain, 2004). In addition, a reduction in exposure to delinquent peers mediated the treatment effects on delinquency in girls (Van Ryzin & Leve, 2012), from which it can be concluded that affiliation with deviant peers and low monitoring (in this case absence of foster care) increases delinquency. Data from community samples underscore the positive link between affiliation with deviant peers and sexual risk behaviors and delinquent behavior and also found peer rejection to be strongly related to these problem behaviors (Lansford, Dodge, Fontaine, Bates & Pettit, 2014).

The second research group is based in Tampa, Florida and involves a partnership between the *Hillsborough County Juvenile Assessment Center* (HJAC) (a centralized intake facility for arrested juveniles), the *Florida Department of Health* (DOH), *Hillsborough County Health Department* (HCHD), and the *Florida Department of Juvenile Justice* (DJJ). Their main target population are newly arrested juveniles who are released to the community, placed under non-secure home arrest or in secure detention, depending on the number and severity of their previous offences. Urine-tested STIs and drug use, and arrest history were found to be intercorrelated (Childs et al., 2011), which underlines the PBS notion.

Another interesting finding was that individual level risk factors (i.e., age, gender, race, drug use, offence history) outperformed community level risk factors (community disadvantage, residential stability) in predicting sexual risk behaviors (Dembo et al., 2009b). An increased risk for STIs (chlamydia and/or gonorrhoea) was found for older adolescents, females, African-Americans in general, and arrests for individuals with more serious charges. In particular, girls who were on drugs (i.e., marijuana or cocaine) tested positive for STIs more often than girls who did not use drugs (Dembo et al., 2009a). Girls using drugs more frequently practiced unsafe sex, had multiple partners, and had sex while using drugs or alcohol.

The third group of researchers work in the Atlanta, Georgia, area with newly detained juveniles in the regional youth detention centers (RYDCs). Like the previous mentioned research groups, the central focus of the Atlanta research group is on drug use and racial

differentiation of newly detained juveniles with sexual risk behaviors (Voisin, Salazar, Crosby & DiClemente, 2013; Voisin, Chen, Fullilove & Jacobson, 2015). But they also examine other risk factors related to sexual risk behaviors like exposure to community violence (more relevant in males than females; Voisin et al., 2015), parental monitoring and less frequent studied factors such as gang involvement (Voisin, King, DiClemente & Carry, 2014) and gang norms (King, Voisin & DiClemente, 2013), both increasing the chance on sexual risk behaviors. In line with previous studies, it was found by Voisin, Salazar, Crosby, and DiClemente (2013) that ethnic identity highly predicted STIs as a consequence of more sexual risk behaviors and parental monitoring was negatively related to sexual risk behaviors.

Studies from other researchers, including European researchers, added to the findings listed above, that irrespective of gender, juveniles with substance use disorders, with or without co-occurring disorders, engaged in sexual risk behaviors (e.g., multiple sexual partners, unprotected sex, sex while drunk or high) and, as a consequence, were at greater risk of HIV-AIDS (Teplin et al., 2005). Kretschmer, Hickman, Doerner, and Heron (2014), however, demonstrated that in particular conduct problems were linked to sexual risk behaviors and delinquent behavior, especially when present at young age and persisted in early adolescence.

3. Relevance and aims of the study

Taken together, quite some studies were conducted on risk factors of sexual risk behaviors and delinquent behavior in young female offender subgroups. Most of these studies were conducted in the United States among detained girls, newly arrested girls and girls mandated to foster care. The current study contributes to research on female adolescent problem behaviors in several ways. Firstly, this is one of the first European based study in a population of female adolescent delinquents treated in an outpatient forensic treatment center. Most studies on female adolescent offenders were conducted among detained female offenders (e.g., Voisin et al., 2013). Secondly, empirically supported risk factors for sexual risk behaviors, as well as for delinquent behavior were studied in the same population. Thirdly, we used path analysis to estimate the contribution of a number of risk factors in delinquent behavior and sexual risk behavior among girls simultaneously. To date, other studies included either sexual risk behavior or delinquent behavior as an outcome variable (Dembo et al., 2009a, b) or focused on a specific sexual risk behavior outcome, such as STIs (Dembo et al., 2009a, b; Voisin et al., 2013). Finally, where most studies focused on the effect of a single risk factor, such as parental influences (Wight, Williamson & Henderson, 2006) or condom use (Tsay, Child, Cook-Heard & Sturdevant, 2012) on sexual risk behaviors, the present study included a number of well-established risk factors for delinquent and sexual risk behavior.

Three hypotheses guided the current study. Firstly, sexual risk behaviors and delinquent behavior will be positively correlated, corroborating the Problem Behavior Syndrome (PBS). Secondly, as a result of this correlation, the empirically supported risk factors (i.e., previous convictions, peer rejection, affiliation with deviant peers, inadequate parenting skills, negative life events, treatment dropout, substance use, and conduct problems) will be related to both sexual risk behaviors and delinquent behavior. Finally, girls from an ethnic minority group will show higher rates of sexual risk behaviors. Fig. 1 presents the hypothesized conceptual model.

4. Method

In this retrospective cross-sectional study, file information was analyzed of 146 out of 400 (37%) adolescent girls aged 12 to 18 years who were in treatment at *de Waag*, a Dutch center for outpatient forensic mental health, in the period January 2007 to December 2008. Due to a limited time frame to conduct the study, 200 file records were randomly

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