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Predictors of recidivism in adolescent offenders

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Predictors of Recidivism in Adolescent Offenders

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Abstract

Adolescent offenders commit a significant number of physical and sexual assaults every year. A critical task for researchers and clinicians is to understand the distinct pathways that lead to these serious types of offending. The current study attempts to test the importance of these different pathways by comparing violent, violent sex, non-violent sex, and non-violent offenders based on SAVRY risk items, reoffending, and effects of treatment. A sample of 517 adolescents on probation was assessed for several risk factors (i.e., anger management, ADHD, low empathy/remorse) by probation officers. Recidivism over 12 months was assessed from official records. Results indicated that after controlling for race, groups differed on several risk factors, with significant differences noted between violent and non-violent sex offenders for anger management and attention deficit/hyperactivity problems, as well as violent sex offenders and all other offenders for low empathy/remorse. In comparison to non-violent offenders, violent offenders had more any re-offense and violent re-offense. While risk factors partially predicted the relationship between offender and recidivism, treatment did not moderate this relationship.

KEYWORDS: *adolescent sex offender, adolescent violent offender, risk factors, treatment*

Predictors of Recidivism in Adolescent Offenders

Adolescent offenders commit a significant number of physical and sexual assaults every year (Puzzanchera, 2009). A critical task for researchers and clinicians is to understand the distinct pathways that lead to these serious types of offending, which could inform how best to assess risk for reoffending across these groups and to determine what type of treatment may be most effective across these groups. In order to examine serious offender groups, it is important to first understand the extent to which serious offenders differ from non-serious offenders. This distinction is necessary as many researchers assert that the complexity of antisocial behavior cannot be reduced to a single causal process, and thus it is important to unravel the processes that lead to different types of criminal behavior (Lykken, 1995; Mealey, 1995; Moffitt 1993a).

Distinguishing Serious and Persistent Offenders

One of the most well studied offender typologies differentiates serious and persistent juvenile offenders from less serious and less chronic juvenile offenders (Moffitt, 1993a). Also known as the adolescent limited (AL) versus life-course persistent (LCP) dichotomy, this classification system is based on both offender and offense characteristics (Moffitt, 2006). A substantial amount of research supports the differences between these offender groups in studies on both adolescents (Brennan, Breitenbach & Deiterich, 2008; D'Unger et al., 1998; Nagin et al., 1995; Odgers et al., 2007; Parker et al., 2009) and adults (Moffitt, 2003; Piquero & Moffitt, 2004).

The most important features differentiating these groups are their age of onset and duration of offending. In particular, general offenders begin to display antisocial behaviors around the onset of adolescence, while serious offenders tend to show a progression of antisocial behavior over time, which typically begins in early childhood (Moffitt, 1993a). Serious

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offenders often display oppositional and conduct problems in early childhood, which progress into more serious antisocial behaviors by adolescence (Moffitt, 1993b) and well into adulthood (Loeber & Farrington, 1998; Odgers et al., 2007). In comparison, general offenders have a much shorter window in which they engage in antisocial and offending behaviors. That is, their antisocial behavior often does not start until adolescence and it usually does not persist into adulthood (Eklund & Klinteberg, 2006; Moffit et al., 2001).

Besides showing a more chronic pattern of antisocial behavior, serious offenders also show more severe antisocial behavior as evidenced by their use of high levels of violence and aggression, and engagement in multiple types of offending behaviors (Moffit et al., 2001; see also Lykken, 1995). Further, serious offenders often show poorer response to treatment, as indicated by higher rates of recidivism after treatment (Piquero, Nagin, Moffitt, 2010). In contrast, adolescent onset offenders are less likely to show violent and aggressive behaviors (Moffitt et al., 2001) and show lower rates of recidivism (Piquero et al., 2010).

In addition to these behavioral differences, serious offenders are also characterized by individual predispositions that are distinct from other offenders. These risk factors include attention deficits, hyperactivity, impulsivity, and sensation seeking (Bailey, 2003; Broidy et al., 2003; Farrington, 1986; Hawkins et al., 1998; Herrenkol et al., 2003; Lipsey & Derzon, 1998; Loeber et al., 1983; Maguin et al., 1995; Nagin & Land, 1993; Rutter et al., 2006). They are also more likely to show neuropsychological risk factors (deficits in executive functioning) and cognitive (e.g., low intelligence) deficits (Fergusson, Lynsky, & Horwood, 1996; Kratzer & Hodgins, 1999; Piquero, 2001; Raine, Yaralian, Reynolds, Venables, & Mednick, 2002). Serious offenders also show a number of biological abnormalities, such as lower resting heart rate (Raine, 2002) and several neurological abnormalities (Rilling et al., 2007; Stadler et al., 2007).

Serious offenders also display problems in their ability to regulate emotions, including their ability to correctly identify emotional stimuli (Kruesi et al., 1990; Patterson, 1982), control emotional behavior (Golubchik, Mozes, Vered & Weizman, 2009) and engage in appropriate empathic responses (Joliffe & Farrington, 2003).

One individual predisposition associated with serious offending that has recently garnered a great deal of support is the presence of callous-unemotional (CU) traits (Frick & Viding, 2009; Frick & White, 2008). These traits include such characteristics as a lack of empathy, an absence of guilt and remorse, and other indicators of a deficit in conscience development. Importantly, these traits have been associated with the construct of "psychopathy" which has shown a long history of predicting more serious offending in adult samples (Douglas, Vincent, & Edens, 2006). Further, there is some suggestion that these traits may involve a callous disregard for the rights and welfare of others and could be primary contributing factor to the high level of aggression and violence shown by this group (Frick & White, 2008).

In addition to these individual risk factors, serious offenders are also more likely to be exposed to a number of environmental risk factors. Child maltreatment has especially been identified as an important risk factor for predicting serious offending (Smith & Thornberry, 1995; Thornberry & Krohn, 2001; Widom & Maxfield, 2001; Zingraff, Leiter, Myers & Johnson, 1993). In addition, parental criminality (Baker & Mednick, 1984) and exposure to violence in the home (Caputo, Frick & Brodsky, 1999) are also predictors of more serious and violent offending behaviors in youth. Serious offenders are also more likely to come from homes with greater family instability, more family conflict, and with parents who use less effective parenting strategies (Aguilar, Sroufe, Egeland, & Carlson, 2000; Patterson & Yoerger, 1997; Woodward, Fergusson, & Horwood, 2002).

Given these individual predispositions and dysfunctional family characteristics, several researchers have suggested that serious offending can result from a transactional process between child characteristics and their socializing environment (Moffitt, 1993; Patterson, 1982). As an example of this, children with difficult temperaments are likely to evoke more problem interactions with parents (Moffitt, 1994; Sameroff & Chandler, 1975), which may include negative parenting practices, such as harsh and inconsistent parenting practices (Patterson, 1995) poor parental monitoring, and low parental involvement (Patterson, 1992; Farrington, 1989). Together, these risk factors greatly increase the likelihood that a child will engage in a more severe and persistent pattern of antisocial behavior over time (Moffitt, 1993).

In contrast, the pathway through which non-serious (or AL) offenders develop antisocial behaviors is likely a result of developmental related problems (e.g., low social maturity) and interactions with delinquent peers (Caspi, Lynam, Moffitt, & Silva, 1993; Moffitt, 1993). However, AL offenders do not appear to struggle with lower cognitive abilities, like LCP offenders. Instead, they suffer from a maturity lag that may temporarily prevent them from making meaningful decisions until they reach adulthood, when they close the maturity gap and desist from antisocial behavior (Moffitt, 1993). This may also explain why the criminal career of AL offenders is more transient and less extreme than LCP offenders (Doherty, Laub, Sampson, 2009; Piquero, 2007).

In summary, this brief review suggests that there are risk factors that can enhance the development of a serious pattern of antisocial behavior over time. It appears that offending is not uncommon in adolescence (Farrington, Ohlin, & Wilson, 1986), but rather, general offenders tend to suffer from a maturity lag, or an exaggeration of the identity forming process (Moffitt, 1993). On the other hand, youth with early behavior problems, and whose antisocial behavior

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persists beyond adolescence, appear to have a cluster of individual and family risk factors that serve to designate a different group of adolescent offender.

Differences within Serious Offenders

While there has been fairly widespread support for this distinction between early-onset serious offenders and later-onset offenders, there is less consensus as to whether serious offenders form a homogeneous group. Specifically, within the larger group of serious adolescent offenders, there may be additional important distinctions that can be made. Two subgroups of serious offenders that have been the focus of significant research are juvenile offenders who commit violent crimes and those who commit sexual crimes. As noted above, adolescents who show early onset to their antisocial behavior are more likely to be violent offenders (Moffitt & Caspi, 2001). Similarly, studies have shown that adolescents who commit sexual crimes are more likely to show an early onset to their antisocial behavior (Van Wijk, Loeber, Vermieren & Pardini, 2005). More importantly, there is research to suggest that, although these two types of serious offenders share some important characteristics, they also show unique risk factors which could suggest some differences in the developmental processes leading to the two patterns of offending.

Sex Offenders. With respect to their similarities, a number of studies suggest that sex offenders bear a resemblance to violent offenders based on their comparable levels of cognitive abilities (e.g., lower IQ; Spaccarelli, Boweden, Coatsworth & Kim, 1997), higher externalizing (Valiant & Bergeron, 1997) and internalizing (van Wijk et al., 2005) behaviors, greater histories of antisocial behavior (Becker & Hunter, 1997), lack of empathic responding (Lindsey, Carlozzi, & Eells, 2001), and presence of maladaptive social and familial characteristics (Jacobs, Kennedy & Myer, 1997).

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However, there have been a number of studies suggesting some unique characteristics of adolescent sex offenders that differentiate them from violent offenders. Specifically, deviant sexual fantasies are thought to play an integral role in the development and maintenance of sexual offending (Quinsey & Marshall, 1983; Wright & Schneider, 1997). Studies report significant associations between the type of sexual fantasies (e.g., fantasies about prepubescent children, fantasies of rape) and greater frequency sexual offending, number of victims, and feelings of hostility (Abel & Rouleau, 1990; Hanson & Bussiere, 1998).

Sex offenders are also exposed to many environmental risk factors that are unique from other offenders. For example, when compared to violent offenders, sex offenders are more likely to run away from home (van Wijk et al., 2005), have greater insecure attachments to caregivers (Marshall & Marshall, 2000; Smith and Isreal, 1987), and report having fewer peer attachments (Miner & Crimmins, 1995).

Abuse history is another important social risk factor that appears to play a more significant role in adolescent sexual offending than it does in non-sex offending (Finkelhor & Browne, 1986; Ford & Linney, 1995; Jacobs, Kennedy & Meyer, 1997; Knight & Sims-Knight, 2003). In support of this, Seto and Lalumierie (2010) found that across 27 studies, sex offenders reported more significant histories of both physical and sexual abuse than non-sex offenders. One study estimated that nearly 40-80% of adolescent sex offenders are victims of sexual abuse (Becker & Hunter, 1997) compared to estimates of 16% non-sex offenders (Seto & Lalumiere, 2010). Further, prospective research indicates that sexual abuse is a better predictor of sexual reoffending than non-sexual reoffending (Fagan & Wexler, 1988; Jonson-Reid & Way, 2001). In addition, physical abuse also appears to be important for differentiating sex from non-sex offenders. Specifically, adolescent sex offenders have been found to report higher rates of

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physical abuse (59%) than non-sex offender (49%) groups (Seto & Lalumiere, 2010). Thus, abuse histories appear to be an important and clinically relevant dimension that may help in understanding the development of sexually abusive behaviors in adolescents.

Based on these studies, there is evidence to suggest that sex offenders are exposed to a number of different risk factors than other serious offenders. These include histories of physical and sexual abuse, insecure attachments, and deviant sexual arousal. However, there is one additional distinction that could be important for understanding serious adolescent offending. Many researchers suggest that sex offenders themselves are a heterogeneous population (Knight & Prentky, 1993; Marshall & Barbaree, 1990; van Wijk, Blokland, Duits & Vermeiren, 2007). One important distinction among sex offenders that has been reported in research is between adolescents who show violent sexually offending and those who show non-violent sexual offending.

Violent vs. non-Violent Sex Offenders. When comparing these groups, studies consistently find that they differ based on the age of victims (Awad & Saunders, 1991; Carpenter, Peed & Eastman, 1995; Hunter, Hazelwood & Slesinger, 2000; Hunter, Figuerdo, Malamuth & Becker, 2003; Dean & Malamuth, 1997; Mathews, Hunter & Vuz, 1997; Richardson, Kelly Bhate & Graham, 1997). Specifically these studies consistently show that violent sex offenders are more likely to victimize peers, whereas non-violent sex offenders are more likely to victimize younger children.

In addition, violent sex offenders are significantly more likely to have greater histories of antisocial behaviors than non-violent sex offenders (Righthand & Welch, 2001; Oxnam & Vess, 2006; Worling, 2001). Further, violent sex offenders have a much higher risk of future non-sexual offending, than non-violent sex offenders (Hunter, Hazelwood & Slesinger, 2000).

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Alternatively, non-violent sex offenders are significantly more likely to reoffend sexually (Caldwell, 2002), and do so at twice the rate of adolescents who offend violently (Boyd, Hagan & Cho, 2000).

Studies examining their criminal behaviors show that sex offenders who use higher levels of violence during the sexual offense are more likely to have female victims, victims that are strangers, and commit their sexual assault during the commission another crime (Hunter et al., 2000; Oxman & Vess, 2006). These offenders also appear to have more disengagement with victims, are significantly more likely to use gratuitous force or weapons, and endorse hostile attitudes towards women (Malamuth, 1997; White & Koss, 1993). Conversely, non-violent sex offenders are more likely to offend against a family member or a young child, plan sexually coercive acts through manipulation, and use minimal or no force during the offense (Cooper, Murphy & Haynes, 1996). These studies suggest that overall violent sex offenders appear to be more antisocial, hostile, opportunistic and attack on impulse, while non-violent sex offenders more are likely to attack against victims they know, have victims who are children, and use verbal manipulation instead of violence (see also, Prentky, Knight & Lee, 1995; Knight & Prentky, 1993).

As another point of comparison, non-violent sex offenders tend to have more disturbed relationships with peers (Epps & Fisher, 2004). Some researchers suggest that non-violent sex offenders have relationships with younger children as a result of poor social skills (Becker, 1988; Knight & Prentky, 1993). They are also more likely to have poor relationships with same aged peers, regard these relationships as less fulfilling, and report feelings of loneliness (Righthand & Welch, 2001). Likely as a result of these underdeveloped relationships, non-violent sex offenders report greater social isolation, social withdrawal, and peer rejection in comparison to violent sex

offenders (Epps & Fisher, 2004; Knight & Prentky, 1993; Becker, Harris, & Sales, 1993; Oxnam & Vess, 2006).

Another important difference between violent and non-violent sex offenders is their own histories of abuse. Non-violent sex offenders are more likely to have been sexually and physically abused at earlier ages and with greater frequency (Gray, Busconi, Houchens, & Pithers, 1997). A number of researchers suggest that, because this group of sex offenders experience significantly more sexual and physical abuse than violent offenders, they are more likely to experience greater cognitive distortions and maladaptive beliefs related to sexually abusive behavior (McCrady, Kaufman, Vasey, Barriga & Gibbs, 2008; Spacarelli, Bowden, Coatsworth & Kim, 1997).

 Children who experience significant abuse are at risk for mental health issues, (Becker, Kaplan, Tenke, & Tartaglini, 1991; Finkelhor, 1984) and this is especially true for non-violent sex offenders. Non-violent sex offenders are at risk for internalizing problems self-efficacy deficits, and pessimistic attributional styles (Hunter & Becker, 1994; Hunter & Figuerdo, 2000). In particular, non-violent sex offenders report higher rates of depression and anxiety (Hunter et al., 2003) and greater problems with adjustment and attachment than other offenders (Marshall, 1993).

Non-violent sex offenders often display more cognitive distortions surrounding their offense (Gannon & Polaschek, 2006), and this may be a result of their more extensive histories of sexual abuse (Worling, 1995). Abel and his colleagues (1984) argued that sexual offenders, especially non-violent sex offenders or child molesters, tend to rationalize and justify their behaviors in order preserve self-esteem. They also stated that cognitive distortions may serve as a way of legitimizing offenders' behaviors without the feelings of shame and guilt (Abel, Becker

& Cunningham-Rathner, 1984; Abel, Gore, Holland, Camp, Becker, & Rathner, 1989). In support of this theory, adolescent sex offenders who use minimal violence tend to endorse cognitive distortions such as blaming the victim (Kahn & Chambers, 1991) and minimizing and rationalizing the suffering of victims, all of which serve to develop and maintain sexual offending (Spacarelli et al., 1997)

In contrast, violent sexual offenders exhibit higher levels of CU traits, suggesting that they do not use such a cognitive style but, instead, seem to lack empathy towards their victims (Caputo, Frick & Brodsky, 1999). Further, within sex offenders, CU traits are associated with the use of gratuitous violence with victims and with the number of victims (Lawing, Frick & Cruise, 2010). This interpersonal style may be important in differentiating these groups of adolescent offenders, as many studies on adult sex offenders show that those with higher levels of psychopathic traits tend to target multiple types of victims,

Based on this research, there appears to be two distinct groups of sex offenders. One group, non-violent sex offenders, tends to have earlier, more severe, and more frequent experiences of both sexual and physical abuse, as well as more disturbed peer relationships. Such adverse developmental experiences likely contribute to altered cognitive processing, especially related to the processing sexually abusive behavior after being the victims of abuse. These cognitive distortions are especially prevalent among non-violent sex offenders. Furthermore, this group does not share a general criminal and antisocial lifestyle with other groups of serious offenders, and thus it can be argued that non-violent sex offenders go through a unique pathway to sexual offending.

Alternatively, violent sex offenders have more extensive histories of non-sexual offending and antisocial behaviors, and they are more likely to re-offend non-sexually in

comparison to non-violent sex offenders. This group also tends to act on impulse and engage in varied types of offending, closely resembling the behavior of other types of serious offenders. Importantly, violent sex offenders display higher levels of CU traits, which is an key marker for a more serious and chronic style of offending. Thus, an important question that is unclear from existing research is whether or not violent sex offenders differ from other violent offenders in important ways.

Summary. This review covered a wide range of individual, environmental and familial factors that may differentiate serious offenders from non-serious offenders and that may differentiate within types of serious offenders. That is, there appears to be clear differences between early-onset serious offenders and those with an adolescent-onset to their offending behavior, with the former being more likely to be aggressive and violent and to continue their offending behavior into adulthood.

Further, within serious offenders, another distinction has been made between sexual offenders and other violent offenders and between violent and non-violent sexual offenders. While there do appear to be important differences between violent and non-violent sexual offenders, it is not clear whether or not violent sexual offenders differ from other violent offenders. In fact, this review suggests that violent offenders bear resemblance to violent sex offenders along key criminal dimensions, including criminal versatility, severity and chronicity and they both exhibit greater levels of CU traits. However, direct comparisons between these two groups of serious offenders are rare.

Identifying the unique risk factors associated with each of these offender groups is critical to understanding the etiology of the different types of offending. Importantly, many of these risk factors can be targeted in interventions or therapy (i.e., poor parenting, deviant peer

affiliation). Also, as noted above, these offender groups differ in their rate and type of recidivism. It is possible that these unique risk factors account for these differences in recidivism across groups.

Risk Factors for Recidivism in Different Offender Groups

As noted above, there have been some differences found between the risk for recidivism across the different offender groups. That is, violent sex offenders and violent offenders are more likely to recidivate non-sexually, while the rate of sexual recidivism tends to be higher for non-violent sex offenders. However, to date, there are no data that directly compare the rate and type of recidivism across all three groups. Understanding these differences could be important for designing and implementing treatments for the different types of offenders. This is especially relevant for different types of sex offenders, as most are grouped together into the same treatment programs (Hunter & Longo, 2004; Print & O'Callaghan, 2004; Ward & Stewart, 2003). Furthermore, identifying different predictors of recidivism across these three groups has the potential to inform the decisions in the legal system concerning the most appropriate level of placement (e.g., detainment, out-of-home, in-home) for youth.

For general offenders, research shows that the characteristics of the offenses themselves (e.g., younger age at first offense, carrying weapons, history of aggression, use and selling of illegal substances) are important predictors of recidivism (Benda, Corwyn, Toombs, 2001; DeLisi et al., 2008; Stoolmiller & Blechman, 2005). Contextual risk factors such as poor school performance, poor family relationships, gang membership, father criminality, and delinquent peer associations are also important in predicting general delinquent recidivism (Grisso, 1998; Hoge & Andrews, 2002; Loeber & Farrington, 1998). Thus, a broad range of factors may be

related to general recidivism. However, for serious offenders, there appear to be more specific individual and environmental risk factors that predict violent or sexual recidivism.

For violent offenders, the strongest predictors of violent recidivism reflect a combination of environmental (e.g., poor parental supervision, poor school performance, and early social maladjustment) and individual risk factors (e.g., high levels of anger, impulsivity, and low intelligence; Catchpole & Gretton, 2003; Farrington & Loeber, 2000; Mills, Kroner & Hemmat, 2007; Quinsey, Harris, Rice & Cormier, 2006). One important individual risk factor that has emerged as a leading predictor of violent recidivism is the presence of CU traits. Youth with high levels of CU traits are at an increased risk for future violent offenses and higher rates of reoffending (Forth, Hart, & Hare, 1990; Kruh, Frick, & Clements, 2005), even after controlling for previous conduct problems (Pardini, Obradovic & Loeber, 2006). Thus, there are individual traits that contribute to the risk for violent recidivism, however one of the most important predictors of more severe (Christain, Frick, Hill & Tyler, 1997) and stable (Frick, Stickle, Dandreaux, Farrell, & Kimonis, 2005) violent behavior is the presence of CU traits.

There is evidence to suggest there are also different predictors for different types of recidivism for adolescent sex offenders. The factors associated with non-sexual recidivism include aggressive behaviors, low self-esteem, and the presence of CU traits (Kahn & Chambers, 1991; Langstrom, 2002; Smith & Monastersky, 1986; Worling & Curwen, 2000). Alternatively, the factors associated with sexual recidivism include child maltreatment, sexual abuse, less previous delinquency, deviant sexual arousal, impulsivity, social skills deficits, and offending against young children (i.e., ages 5 years and younger; Caldwell, Ziemke, & Vitacco, 2008; Hendriks & Bijleveld, 2008; Kahn & Chambers, 1991; Righthand & Welch, 2004; Worling &

Curwen, 2000). Despite this, there is little information about the risk factors specifically related to violent or non-violent sexual recidivism (see O'Shaughnessey, 2002 for a review).

While this preliminary research offers some important insights into the specific predictors of recidivism in the larger group of sex offenders, there are no data comparing the different predictors of recidivism across violent and non-violent sex offenders. Therefore, more work is needed to determine if there are different risk factors predicting recidivism. The literature indicates these two groups display qualitative (e.g., social relationships, CU traits) and quantitative differences (e.g., number and timing of sexual and physical abuse) with regard to risk factors, and it is important to understand whether these account for differences in their rate of recidivism. Importantly, comparing these risk factors is important for considering the types of interventions that would be most effective for these groups.

Effect of Treatment Across Offender Groups

As was noted above, understanding and targeting risk factors are a critical part of planning effective treatments for offenders. Specifically, treatments that target anger control (Lochman, et al., 1984) stress management (Schlichter & Horan, 1981), assertiveness (Huey & Rank, 1984), problem solving (Kazdin et al., 1987; Kazdin Siegel & Bass, 1992), parent child relations (Eyberg, Boggs & Algina, 1995; Eyberg, Funderburk & Hembree-Kigin, 2001), and parenting (Wells & Egan, 1988) have been successful at reducing general delinquent behaviors.

Despite this success for treatments of general offenders, there is more limited evidence for the effectiveness of treatments for chronic, serious, violent offenders (see Tate, Reppucci & Mulvey, 1995 for a review). Of the available evidence, studies show that treatments run by mental health professionals, those that incorporate family systems, and those that utilize cognitive behavioral techniques are most successful at reducing recidivism in this group

(Caldwell & Van Rybroek, 2005; Eyburg, Nelson & Boggs, 2008; Dolan & Rennie, 2008; Henggeler et al., 1992; Lipsey, 1999; Latessa & Lowencamp, 2006). Cognitive and cognitive behavioral techniques in particular are effective in the areas of increasing youth skills and decreasing aggressive behavior and recidivism. Specifically, these techniques work by reducing irrational thoughts and impulsivity, and increasing positive thinking, victim empathy, self-talk, youth prosocial behaviors, positive parenting behaviors, positive parent child-relations, and prosocial relationship skills (Borduin et al., 1995). Treatment studies show that incorporating such techniques leads to more positive outcomes for violent offenders, including lowered likelihood of both violent and non-violent recidivism (Caldwell & Van Rybroek, 2005; Henggeler & Sheidow, 2009).

One particular type of treatment, multi-systemic therapy (MST), has shown promising and consistent results for treating serious and violent offenders (Henggeler, Melton & Smith, 1992; see also Henggeler, Cunningham, Schoenwald & Pickrel, 1995 for a review). Using a comprehensive, family-based approach, MST targets individual, family, school, and peer factors that contribute to serious and persistent delinquent behaviors (see Curtis, Ronan & Borduin, 2004 for a review). This treatment modality is especially effective in targeting specific risk factors and reducing recidivism for violent offenders (recidivism reduced by 38% within 12 months; Henggeler et al., 1992).

There are far fewer studies available testing the effectiveness of the treatment of sex offenders. From the limited number of treatment studies, those with a focus on cognitive behavioral and relapse prevention techniques, as well as individual and family components appear to be most effective at reducing recidivism for adolescent sex offenders (Borduin et al., 1990; Henggeler et al., 1992; see also National Adolescent Perpetrator Network, 1993).

Specifically, cognitive behavioral and relapse prevention techniques help to reduce cognitive distortions and maladaptive beliefs, improve parent child relations, and parent and child denial about sexual offending. Treatments that incorporate these specialized techniques are successful at improving youth self-esteem, effective parenting, parent-child communication, peer relations, and reducing sexually aggressive and criminal behavior (Smith & Monastersky, 1986; Worling & Curwen, 2000). One study found that by targeting these risk factors, treatment was effective at reducing sexual recidivism by 29% for sex offenders (Borduin, Schaeffer, Heilblum, 2009). Other studies show reductions in sexual recidivism to rates as low as 8%-14% (Kahn & Chambers, 1991; Miner et al., 1997; Rasmussen, 1999; Sipe, Jensen, & Everett, 1998).

While these studies hold promise for the effective treatment and subsequent reduction in recidivism across different groups of offenders, there are a limited number of studies that have directly compared the effectiveness of treatments across violent, sexual and violent sexual offenders. More specifically, there are a limited number of studies that examine whether the relationship between type of offending and recidivism can be moderated by treatment.

Statement of the Problem

Adolescent offenders commit a significant number of physical and sexual assaults every year. A critical task for researchers and clinicians is to understand the distinct pathways that lead to these serious types of offending, given that the causal pathway may be somewhat different for serious and non-serious offenders. It is also important to identify how offenders differ in risk for reoffending, in order to ensure public safety, and to determine what type of placement is necessary and what type of treatment is most effective. Although the literature reviewed above has revealed important differences between serious offender groups, few of these studies have analyzed whether these differences influence offender outcomes.

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Three pieces of research could be very helpful for informing this area of study. First, it is important to understand the differences between serious offender groups based on their distinctive risk factors. Studies indicate that the majority of juvenile offenders limit their offending to the adolescent years; however, there is a smaller subset of offenders who engage in more chronic and more serious offending beginning in childhood and often extending into adulthood. They appear to have a greater number and more severe risk factors. Most notably, this group tends to display greater deficits with attention and hyperactivity, impulsivity, empathy and remorse, and anger management than the adolescent limited group.

In addition, the serious offender group can be divided into three distinct subgroups: violent sex offenders, non-violent sex offenders, and violent offenders. These three groups have unique risk factors, which may be important predictors for treatment and reoffending outcomes. In particular, unique to both sex offending groups are their extensive histories physical and sexual abuse, childhood maltreatment, social isolation, and peer rejection. However, non-violent sex offenders experience greater social isolation, as well as sexual and physical abuse at earlier ages and with greater frequency than violent sex offenders. Lastly, little research has focused on differences between the two violent offender groups. For example, CU traits are a core dimension of psychopathy and one that has shown to be important for designating a distinct group of antisocial individuals in child and adolescent samples (see Frick & White, 2008). CU traits are an important predictor of violent, non-sexual recidivism in sex offenders (Langstom & Grann, 2000) and a predictor of both violent offending and recidivism in violent offenders (Forth, Hart, & Hare, 1990). However, it remains unclear as to whether violent sex offenders and violent offenders would differ in their level of CU traits. Thus, more work is needed to determine if there are important differences in risk factors *within* serious offender groups.

Second, studies indicate that serious offenders are more likely to recidivate than less serious offenders, and in particular, violent offenders are more likely to recidivate in a violent manner than non-violent offenders. Adolescent sex offenders are also a heterogeneous group, where violent sex offenders are more likely to display similar offending behaviors as other violent offenders, but are less likely to recidivate sexually than are non-violent sex offenders. A small number of studies have examined these specific offender groups based on reoffending outcomes. However, few studies have assessed whether their different reoffending outcomes are due to (predicted by) their different risk factors. If certain risk factors are more important than others for predicting poor outcomes, these factors are likely then to be important targets for interventions designed to reduce future offending.

Third, there is growing recognition of the need for highly specialized treatments for offenders and thus, it is important to understand how different offender groups respond to treatment. Research suggests that violent offenders respond more poorly to treatment, as evidenced by their higher rates of recidivism. (Piquero, Nagin, Moffitt, 2010). While a number of studies have examined these differences, few have examined whether treatment changes (moderates) the association between offense type and recidivism, specifically between offenders who use violence during offenses and those who do not.

Thus, the current research tested whether offender groups (general, violent, violent sex, and non-violent sex offenders) differ on several important risk factors. This study also examined whether recidivism differs across these three groups and whether this was due to (predicted by) different risk factors. Finally, the current study examined whether treatment changed (moderated) the risk for recidivism for these violent offender groups and non-violent sex offenders.

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Specific Hypotheses

Based on these considerations, the following hypotheses were tested:

1. Controlling for race, violent offenders, violent sex offenders, and nonviolent sex offenders were predicted to differ on historical, social, and individual risk factors.

> a. Violent offenders and violent sex offenders were predicted to report more peer delinquency, anger management problems, attention deficit hyperactivity difficulties and will show less empathy/remorse than non-violent sex offenders and other non-violent offenders.

> b. Non-violent sex offenders were predicted to have more peer rejection, lack of personal support, and childhood maltreatment than all other offenders.

2. Controlling for race, violent offenders, violent sex offenders, and nonviolent sex offenders were predicted to differ in recidivism.

> a. Violent offenders and violent sex offenders were predicted to engage in more non-sexual recidivism than non-violent sex offenders.

> b. Non-violent sex offenders were predicted to engage in more sexual recidivism than all other groups.

> c. Low empathy/remorse, attention deficit hyperactivity difficulties, anger management, and peer delinquency were expected to account for the risk for recidivism for violent offenders and violent sex offenders.

> d. Child maltreatment, peer rejection, and lack of personal support were expected to account for the risk for recidivism for non-violent sex offenders.

3. Controlling for race, treatment was predicted to moderate the relationship between offender groups and recidivism. That is, those offenders who had treatment, who successfully completed treatment, or who had more days in treatment were predicted to recidivate less than those who had no treatment, had not successfully completed treatment, or had fewer days in treatment.

Method

Participants

Participants were 517 adolescents on probation in three Louisiana parishes. The participants were recruited from probation offices in Jefferson, Caddo, and Calcasieu parishes. For Jefferson parish (n = 102), this included youth on probation from 2008-2009. For Caddo (n = 250) and Calcasieu (n = 165) parishes, this included youth on probation from 2009-2010. The sample demographics are described in Table 1. At the start of the study, participants ranged in age from 8 to 18 years (mn = 15.43, SD = 1.62). The sample consisted of 95% males and the ethnic make-up of the sample was 74% African- American, 24% Caucasian, and 1.4% as "biracial" and 0.4% as "other".

Petition data was collected for all youth. Petitions in Louisiana are defined as arrests that have been petitioned by the DA's office, which occurs before the youth has been adjudicated for the offense. Among offenders, the average number of petitions before the study was 3.37 (SD = 2.7). The percentage of offenders with a violent petition was 49.7% and the percentage of offenders with a violent sex petition was 4.8%. The percentage of offenders with a non-violent petition was 90.1% and the percentage of offenders with a non-violent sex petition was 0.01%. Table 2 describes frequencies and percentages of the top 10 most frequent violent, violent sex and non-violent petitions in offender history prior to the start of the study. Due to the small

number of non-violent sex petitions ($n = 3$), these offenders were excluded from all analyses.

Therefore, analyses for hypotheses 1b, 2b and 2d were not performed.

Table 1

Demographic characteristics of the sample

Variable	Violent Offender	Violent Sex Offender	Non-Violent Offender	Full Sample	χ^2/T (*df*)
	(*n*=246)	(*n*=25)	(*n*=236)	(*n*=517)	
Demographics					
Race					24(4)**
% Caucasian	16%	52%	29%	24%	
% African American	82%	48%	69%	74%	
% Bi-racial	1.6%	0%	1.2%	1.4%	
% Other	0.4%	0%	0.4%	0.4%	
Gender					1.2(2)
% Male	95%	100%	95%	95%	
Parish					20(4)**
Caddo	51%	20%	49%	48%	
Calcasieu	26%	68%	34%	32%	
Jefferson	23%	12%	17%	20%	
Mean Age (SD)	15.50 (1.5)	15.44 (1.6)	15.44 (1.7)	15.47 (1.6)	.09(2)

Note. * $p < .05$, ** p < .01; χ^2 analyses for race used a combined race variable was comprised of "Caucasian" and "all else", which included African- American, Bi-racial, and Other.

Table 2

Frequencies and percentages of top 10 violent, violent sex, and non-violent petitions

Petitions ($M = 3.37$; $SD = 2.7$)					
Violent Petitions ($M = 0.91$; $SD = 1.3$)		Violent Sex Petitions ($M = 0.06$; $SD = 0.3$)		Non Violent Petitions ($M = 3.16$; $SD = 3.0$)	
n (%)		n (%)		n (%)	
Simple battery	134 (35.9%)	Aggravated rape	5 (1.0%)	Theft-misdemeanor	75 (14.5%)
Battery of a teacher	25 (4.9%)	Attempted forcible rape	1 (0.2%)	Disturbing the peace	63 (12.2%)
Aggravated battery	17 (3.3%)	Attempted rape	1 (0.2%)	Simple burglary	58 (11.2%)
Assault on a teacher	11 (2.1%)	Sexual battery	18 (3.5%)	FINS ungovernable	47 (9.1%)
2nd degree battery	10 (1.9%)	--	--	Criminal damage to property	30 (5.8%)
Aggravated assault	10 (1.9%)	--	--	Possession of CDS (schedule I)	28 (5.4%)
Simple assault	8 (1.5%)	--	--	FINS truancy/ violates rules	25 (4.8%)
Battery of a police officer	8 (1.5%)	--	--	Theft- felony	23 (4.4%)
Aggravated 2nd degree battery	5 (1.0%)	--	--	Carrying firearm at school	17 (3.3%)
Armed robbery	4 (0.8%)	--	--	Criminal trespass	12 (2.3%)

Note: Percentages are of entire sample; percentages shown are only for the top 10 offenses and do not add up to 100%; FINS – Families In Need of Services.

Procedures

Data from all parishes were collected in collaboration with the Models for Change, Systems Reform in Juvenile Justice Initiative (funded by the John D. and Catherine T. MacArthur Foundation), as part of an initiative to increase the use evidence based community services. Models for Change has worked to develop a continuum of approaches and programs known to be effective at enhancing the safety of communities and enhancing the development of youth in the juvenile justice system. Louisiana selected this issue as a targeted area of improvement and is working to increase the availability of scientifically supported community-

level interventions and screening practices to divert youth to those interventions. All participating parishes collected the data used for this study as part of their on-going evaluation of their effects to increase the use of evidence-based services for youths in the juvenile justice system.

The data for this study was gathered from the youth's official court records. Only de-identified electronic records from the parishes were used for the current study. Because of the use of archived, de-indentified official records, informed consent for the use of the information in research was waived. IRB approval was obtained from the UNO IRB to utilize this de-identified database. Based on the definition of minimal risk for prisoner research, the current study involved no more than minimal risk to participants and participation in this study had no effect on their legal status.

Measures

Defining groups of offenders. Offenders were classified into four groups based on offense history. Offense categories were based on the General Provisions of the Louisiana Revised Statutes, Title 14 Criminal Law- 2009. Violent offenders were classified based on both current and previous offenses; that is, this group included those with a history of at least one violent offense but no history of any sexual offense. The violent offenses included: homicide, aggravated assault, aggravated second degree battery, armed robbery, robbery, aggravated kidnapping, voluntary manslaughter, extortion, carjacking, terrorizing, and aggravated arson, 2nd degree battery, aggravated 2nd degree battery, simple battery, battery of a police officer, and battery of a teacher (see Loeber et al., 1998). Violent Sex Offenders had a history of at least one violent sexual offense which included: rape, aggravated rape, forcible rape, aggravated incest, sexual battery, second degree sexual battery, and sexual oral battery. Non-violent sex offenders

did not have a history of any violent sexual offending but had one non-violent sexual offense, which included: indecent behavior with juveniles, incest, video voyeurism, carnal knowledge of a juvenile, and molestation of a juvenile (see Van Wijk, et al., 2007). As mentioned before, due to the small number of non-violent sex offenders in the sample ($n = 3$), they were excluded from all analyses.

  Structured Assessment of Violence Risk in Youth (SAVRY; Borum, Bartel, & Forth, 2003). The SAVRY is a structured professional judgment risk assessment tool that was designed to assess violence risk in adolescents (Borum et al., 2003). The SAVRY contains four scales, including 10 Historical Risk Factor items, 6 Social/Contextual Risk Factor items, 8 Individual Risk Factor items, and 6 Protective Factor items. All individual risk items are rated on a 0-2 numerical scale as "low" when risk factor is not present, "moderate" when the risk factor is present to some extent and/or does not cause severe impairment, or "high" when the risk factor is prominent and/or causes severe impairment. Protective factors are coded as "present" or "absent". The Total Risk rating is a professional judgment rating, which the evaluator bases on the results of the entire assessment, including risk and protective factors as well as any other relevant information. The Total Risk rating is scored as "low", "moderate", or "high", or numerically as 0, 1, or 2, respectively. The SAVRY Total Risk score has shown good predictive validity for future violent offenses in both community (Borum, Barte & Forth, 2002) and incarcerated (SAVRY total, r = .69; Gammelgard et al., 2008; Gretton & Abramowitz, 2002) samples of youth.

  The items used in this study include history of childhood maltreatment from the historical risk scale; peer delinquency, peer rejection, and lack of personal support from the social/contextual risk scale; and anger management problems, attention deficit/hyperactivity

difficulties, and low empathy/remorse from the individual risk scale. These specific items have shown good interrater reliabilities in previous studies. For example, in a Dutch study by Lodewijks and colleagues (2008), interrater reliabilities were performed on SAVRY total, domain, and individual items by trained master's-level researchers. Each researcher coded approximately 24% of a sample (*n* = 70) of juvenile offenders from a correctional facility who ranged in age from 12 to 22 (*mn* = 15.4). Interrater reliability for overall SAVRY risk was excellent (ICC = .85), and was good to excellent for SAVRY domains and individual items (ICC's ranged from .61-.86) with the exception of the individual item peer delinquency, which was only moderate (ICC = .57). Table 3 describes the scoring of the SAVRY items used in the current study.

Table 3
Scoring of SAVRY items

Item	0 (Low)	1 (Moderate)	2 (High)
Childhood History of Maltreatment	Youth has not been physically abused or neglected as a child	Youth was physically abused or neglected as a child but the abuse or neglect was relatively infrequent	Youth endured chronic and frequent physical abuse or neglect as a child
Peer Delinquency	Youth does not associate with delinquent peers	Youth occasionally associates with other delinquents/criminals but primary peer group is not criminal	Youth frequently associates with other delinquents/criminals and primary peer group is criminal
Peer Rejection	Youth is not currently experiencing and has not experienced peer rejection throughout childhood	Youth is experiencing moderate peer rejection but this is not severe or chronic	Youth is currently experiencing significant peer rejection
Lack of Social/ Personal Support	Family, caregivers and other adults are capable, available and willing to offer emotional support	Family, caregivers, and other adults are sometimes available to offer emotional support, but this is inconsistent	Youth has few or no family, caregivers or other adults who are capable, available or willing to offer emotional support
Low Empathy/ Remorse	Youth has developed age appropriate capacity for remorse and empathy	Youth shows moderate impairment in age-appropriate capacity for remorse (e.g. minimal distress in response to regret about behavior) and empathy (e.g., only minimally affected by distress of others)	Youth shows significant impairment in age-appropriate capacity for remorse (e.g., shows no emotional distress in response to regret about behavior) and empathy (e.g., appears unaffected by distress of others)
Anger Management Problems	Youth shows age-appropriate ability to express feelings of anger	Youth has moderate difficulty with controlling expressions of anger (e.g., occasional outbursts with yelling)	Youth has significant difficulty with controlling expressions of anger (e.g., frequent outbursts in which others are threatened or harmed)
Attention Deficit/ Hyperactivity Difficulties	No difficulties noted with extreme restlessness, hyperactivity or concentration problems	Moderate difficulties noted with extreme restlessness, hyperactivity or concentration problems	Serious difficulties noted with extreme restlessness, hyperactivity or concentration problems (e.g., active diagnosis of ADHD)

Note. SAVRY = Structured Assessment of Violence Risk in Youth (Borum, Bartel, & Forth, 2003). Descriptions are not actual copyright-protected items but descriptions provided to summarize item content for interpreting analyses. These descriptions should not be used to score the SAVRY.

In all four parishes, youth on probation received a SAVRY at the beginning and end of

their probation term. Trained probation officers administered the pre and post SAVRY to youth.

Each juvenile probation officer (JPO) completed a two-day training workshop for the SAVRY that covered information about the trajectories of youth offending, research on risk factors, and the test scoring criteria. The workshops included rating the SAVRY for two case vignettes, which were reviewed and discussed as a group.   In Caddo and Calcasieu parishes, interrater reliability procedures were performed as part of the National Youth Screening and Assessment Project (NYSAP) Risk-Needs Study. The procedure involved trained research associates observing the SAVRY interviews of JPO's for a random number of cases (Caddo, $n = 28$; Calcasieu, $n = 27$). The RA and JPO then independently scored the SAVRY using the information obtained at the interview and all relevant file information. Interclass correlation coefficients (ICC's) for SAVRY total scores (ICC = .86) and domain scores (ICC's = .81-.86) were excellent, with the exception of the Social/Contextual domain, which had good agreement (ICC = .67). ICC's for items in the current study ranged from .56 to .91, or moderate to excellent. See Table 4 for ICC's for individual SAVRY items used in this study.

Table 4
Intraclass correlation coefficients for SAVRY items

SAVRY Item	ICC for Caddo	ICC for Calcasieu
Childhood History of Maltreatment	--	.83
Peer Delinquency	.81	.81
Peer Rejection	.76	.56
Lack of Social/Personal Support	.86	.84
Low Empathy/Remorse	.91	.80
Anger Management Problems	.80	.84
Attention Deficit/ Hyperactivity Difficulties	.73	.88

Recidivism outcomes. Follow up data were collected for all groups of offenders. The follow up period for participants in all four parishes was 12 months after the initial SAVRY administration. Recidivism included any offense during the 12-month follow up period,

including violent, violent sex, and non-violent offenses. Recidivism was tracked through parish

official database records and names were de-identified for this project.

   Treatment outcomes.   In the current study, 333 (64.4%) youth on probation participated

in community mental health services, as either mandated by the judge or recommended by their

probation officer. Youth were referred to treatment that was commensurate with their level of

risk on the SAVRY. That is, higher risk youth received more intensive services, and lower risk

youth received fewer or less intense services.   Treatment was also decided on the basis of the

cost and location of the program. Probation supervisors and/or mental health coordinators

approved all referrals. For the current study, treatment was measured on the basis of whether

youth had treatment (n = 333; 64.4%), and of those that had treatment, whether treatment was

completed (n = 287; 55.5%), the length of treatment (mn = 78.9 days*; SD* = 99.8) and the type of

treatment. Length of treatment was coded by number of days the youth spent in any treatment,

which could have included multiple treatment programs. Table 5 describes the types of

treatment and the frequencies and percentages for each.

Table 5

Treatment usage

Treatment Information	Frequency (%)/ *M (SD)*
Any Treatment	n=333 (64.4%)
Treatment Completed	n=287 (55.5%)
Days in Treatment	mn=78.9 (SD =99.8)
<u>Type of Treatment</u>	
Anger Management Therapy	n=55 (1.0%)
Anger Replacement Therapy	n=5 (1.0%)
Cognitive Behavioral Therapy	n=2 (0.4%)
Family Counseling	n=79 (15.3%)
Functional Family Therapy	n=33 (6.4%)
Group Counseling	n=26 (5.0%)
Individual Counseling	n=126 (24.4%)
Moral Reconation Therapy	n=15 (2.9%)
Multi-Systemic Therapy	n=42 (8.1%)
Sex Offender Therapy	n=36 (7.0%)
Substance Abuse- Group Therapy	n=9 (1.7%)
Substance Abuse- Individual Therapy	n=29 (5.6%)
Substance Abuse- Residential Therapy	n=33 (6.4%)
Violence Prevention Therapy	n=5 (1.0%)

Note. For "Type of Treatment", frequencies and percentages reflect those of any youth who received a particular type of treatment.

Results

Preliminary Analyses

Before testing the study hypotheses, offender groups were compared on major

demographic variables, including age, race, gender, and parish. Given the small number of

youth in the "biracial" and "other" categories, race was collapsed into two groups, which

included "white" offenders and "all other" offenders for all statistical analyses. Results indicate

that race significantly differed across offender groups, χ^2 (2, $N = 517$) = 24, p < .01 (see Table

1). Thus, race was used as a covariate in all analyses. Chi square comparisons revealed that parish membership significantly differed across offender groups χ^2 (4, $N = 517$) = 20, p < .01 (see Table 1). However, given that the majority of violent sex offenders were in Calcasieu parish (68%), controlling for parish could wash out any effects of these offenders; thus, parish was not used as a covariate in analyses.

Hypothesis 1- Differences Across Offender Groups on SAVRY Risk Items

Tests of hypothesis 1 are reported in Table 6. Hypothesis 1 predicted that violent offender and violent sex offender groups would show higher mean scores for peer delinquency, anger management, low empathy/remorse, and ADHD than non-violent offenders. Differences across offender groups were tested using a one-way analysis of covariance. Results indicate that, while controlling for race, there were significant differences across groups based on their level of anger management problems, F (2, 514) = 8.28, p < .01. Pairwise comparisons using Tukey's procedure indicated that this overall group effect was the result of violent offenders (*M* = .93; *SD* = .78) showing significantly higher anger management scores than non-violent offenders (*M* = .65, *SD* = .71). Results also indicate that, while controlling for race, there were significant differences across groups based on their level of attention deficit/hyperactivity problems, F (2, 514) = 6.16, *p* < .01. Pairwise comparisons using Tukey's procedure indicated that this overall group effect was again the result of violent offenders (*M* = .67, *SD* = .79) showing significantly higher attention deficit/hyperactivity scores than non-violent offenders (*M* = .44, *SD* = .70). Results also indicate that, while controlling for race, there were significant differences across groups based on their level of low empathy/remorse, F (2, 513) = 5.84, *p* < .01. Pairwise comparisons using Tukey's procedure indicated that this overall group effect was the result of violent sex offenders (*M* = .84, *SD*= .80) showing significantly higher scores on low

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empathy/remorse than both violent offenders ($M = .51$, $SD = .66$) and non-violent offenders ($M = .40$, $SD = .64$).

Results also indicate that there were no differences across groups based on childhood maltreatment, $F(2,513) = 0.11$, $p = .90$, peer rejection, $F(2,516) = 0.41$, $p = .67$, and lack of social/personal support, $F(2,515) = 0.37$, $p = .37$. These risk factors were predicted to be higher in the non-violent sex offender group, which was not included in analyses due to the small number of youths in this group.

Table 6
Comparison of offender groups and SAVRY risk items

Risk Item	Violent Offender ($n = 248$)	Violent Sex Offender ($n = 25$)	Non-Violent Offender ($n = 240$)	Overall Group Effect F (df)	Eta^2
Peer Delinquency	.84(.72)[a]	.58(.71)[a]	.76(.70)[a]	1.89(2,511)	.007
Anger Management	.93(.78)[a]	.67(.76)[a,b]	.65(.71)[b]	8.28(2,513)**	.033
Low Empathy/Remorse	.51(.66)[a]	.84(.80)[b]	.40(.64)[a]	5.84(2,510)**	.022
ADHD	.67(.79)[a]	.68(.90)[a,b]	.44(.70)[b]	6.16(2,513)**	.024
Childhood Maltreatment	.27(.55)[a]	.29(.63)[a]	.25(.54)[a]	0.11 (2,513)	.001
Peer Rejection	.39(.59)[a]	.38(.64)[a]	.34(.54)[a]	0.41(2,516)	.002
Lack of Social/Personal Support	.35(.61)[a]	.47(.71)[a]	.31(.57)[a]	0.37(2,515)	.004

Note. *p <.05, **p < .01; effects are the between group effects from a one-way ANCOVA, covarying race; means reported are least squares means adjusted for the covariate; superscripts indicate significant differences between groups through pairwise comparisons using Tukey's procedure; ADHD = Attention deficit/hyperactivity difficulties.

Hypothesis 2- Differences in Re-Offending Across Groups of Offenders

Results from hypothesis 2 are reported in Table 7. To test the hypothesis 2, two recidivism variables were coded: any re-offense (0 = no new offense, 1 = any new offense) and violent re-offense (0 = any non-violent/no offense, 1 = violent offenses). Sexual recidivism was not used, as the number of sexual re-offenses ($n = 3$) was too small to include in analyses.

Recidivism was measured from 12 months post SAVRY administration and a numeric variable, "days", was calculated to determine the length of time for each recidivism outcome (i.e., days until first re-offense, days until first violent re-offense) post SAVRY administration.

Hypothesis 2 predicted that violent offenders and violent sex offenders would have higher rates of any recidivism or violent recidivism than all other offenders. Cox regression analyses were used to test whether groups differed on the time to reoffending. Results indicate that, while controlling for race, there was a significant overall group effect for any new offense, χ^2 (2, $N = 517$) = 10.5 $p < .01$, and any new violent re-offense χ^2 (2, $N = 517$) = 10.8, $p < .01$. The non-violent offender group was the comparison group for analyses and results indicated that violent offenders had faster rates of reoffending for any re-offense (odds ratio = 1.65) and violent re-offense (odds ratio = 2.58) than non-violent offenders.

Table 7

Comparison of offender groups on reoffending outcomes

Variable	*n with re-offense* (%) (n = 517)	B/SE	χ2 (df=3)	Odds ratio
Any Re-offense				
White/Other	122(35.2%)/395(37.0%)	.02/.18		1.02
Overall Offender Group Effect			10.5**	
Violent Offender	252 (43.3%)	.50/.15		1.65*
Violent Sex Offender	25 (36.0%)	.24.36		1.27
Non-Violent Offender	240 (27.1%)			
Violent Re-offense				
White/Other	122(8.2%)/395(13.9%)	-.49/.35		0.67
Overall Offender Group Effect			10.8**	
Violent Offender	252 (17.9%)	.94/2.9		2.58*
Violent Sex Offender	25 (12.0%)	.63/.63		1.88
Non-Violent Offender	240 (7.1%)			

*Note. *p < .05; **p <.01; parameters reported were based on Cox Regression analyses using days to re-offense as the dependent variables; the Non-Violent Offender group was the comparison group for all separate parameters.

Results from the second part of hypothesis 2 are reported in Table 8. The second part of

hypothesis 2 predicted that the risk factors associated with offender group would account for the

relationship between offender type and recidivism. Cox regression analyses were again used to

test whether SAVRY risk items accounted for the relationship between offender groups and any

reoffending or violent reoffending after controlling for race. For these analyses, only those risk

factors that differed across offender groups (i.e., anger management, low empathy/remorse, and

ADHD problems) were tested as possible predictors that would account for increased risk.

Based on these analyses, the overall group membership effect for offender groups for

predicting any re-offending approached significance, $\chi2$ (1, N = 517) = 5.77, p = .056, when

controlling for the risk factors. The effect for offender group membership was again due to the

increased risk for re-offense in the violent offender group, compared to the non-violent offender

group (odds ratio = 1.46). Thus, the risk factors did not fully account for the risk for any

reoffending in the violent offender group. To test whether the factors partially accounted for the

increased risk, the Sobel (2001) test was applied. Specifically, the change in the raw

unstandardized regression coefficient for any re-offending predicting without the risk factors

(.50) was compared to the same raw unstandardized regression coefficient controlling for the risk

factors (.38). The Sobel test was used to compare these two parameters and this test indicated

the reduction from the direct to indirect path approached significance, suggesting the risk factors

partially accounted for increased risk for re-offending (Sobel test Z = 1.93, p = .053) (Preacher &

Hayes, 2004).

Similar analyses were conducted to determine if the SAVRY risk factors accounted for

group differences in increased risk of violent offending. Based on these analyses, the overall

group membership effect for accounting for violent re-offending, $\chi2$ (1, N = 517) = 6.63, p < .05,

remained significant, even controlling for the risk factors. Further, as would be expected, this

effect for offender group membership was due to the increased risk for re-offense in the violent

offender group, compared to the non-violent offender group (odds ratio = 2.12). Thus, the risk

factors did not fully account for the risk for violent reoffending in the violent offender group. To

test whether the risk factors acted as partial predictors, the change in the raw unstandardized

regression coefficient for violent offending predicting violent reoffending without the predictor

(.94) was compared to the same raw unstandardized regression coefficient controlling for the

predictors (.75). The Sobel test was used to compare these two parameters and this test did

indicate a significant reduction, suggesting the risk factors partially accounted for the risk for

violent re-offending (Sobel test $Z = 2.02$, $p < .05$) (Preacher & Hayes, 2004).

Table 8

Offender groups and risk items as predictors of any and violent re-offending outcomes

Variable	B/SE (n = 517)	Overall Group Effect χ2 (df=3)	Odds ratio
Any Re-offense			
White/Other	-.04/.18		0.96
Overall Offender Group Effect		5.77	
Violent Offender	.38/.16		1.46*
Violent Sex Offender	.21/.36		1.24
Non-Violent Offender			
Anger Management	.41/.12		1.51**
Low Empathy/Remorse	.06/.12		1.07
ADHD	.17/.10		1.18
Violent Re-offense			
White/Other	-.41/.36		0.66
Overall Offender Group Effect		6.63*	
Violent Offender	.75/.29		2.12*
Violent Sex Offender	.60/.64		1.84
Non-Violent Offender			
Anger Management	.65/.20		1.92*
Low Empathy/Remorse	-.06/.21		0.94
ADHD	.08/.17		1.09

Note. *p < .05; **p <.01; parameters reported were based on Cox Regression analyses using days to re-offense as the dependent variables; the Non-Violent Offender group was the comparison group for all separate parameters; ADHD = Attention deficit/hyperactivity difficulties.

Hypothesis 3- Treatment as a Moderator of Re-Offending Across Offender Groups

Results from Hypothesis 3 are reported in Table 9. Hypothesis 3 predicted that treatment would moderate the relationship between offender type and reoffending outcome. Treatment variables included any treatment, treatment completed, and days in treatment. All moderational analyses used the violent/non-violent offender groups as the predictor variable (same groups from second part of hypothesis 2), as these were the only offender groups that differed on any

and violent recidivism. Six Cox regression analyses were performed with the 3 treatment

variables separately predicting any re-offending, both as a main effect and as an interaction with

the violent-non-violent offender group. These analyses were repeated predicting violent re-

offending. These analyses were conducted in a step-wise fashion. The main effects for the race

covariate, violent/non-violent groups and treatment condition (i.e., any, completed, or days)

predicting recidivism were entered in the first step. In the second step the interaction term was

added.

For predicting any re-offending, the results indicated that any treatment (odds ratio =

1.69, $p < .01$), treatment completed (odds ratio = 1.56, $p < .01$) and days in treatment (odds ratio

1.00, $p < .01$) all showed main effects for predicting any re-offending but the interaction terms

between treatment and offending group were not significant (odds ratio = 1.09, p = .809; odds

ratio = 0.96, p = .887, odds ratio = 1.00, p = .760, respectively). For predicting violent re-

offending, the results indicated any treatment (odds ratio = 2.68, $p < .01$), treatment completed

(odds ratio = 2.37, $p < .01$) and days in treatment (odds ratio 1.00, $p < .01$) showed main effects

for predicting violent re-offending but the interaction terms between treatment and offending

group were not significant (odds ratio = 3.13, $p = .174$; odds ratio = 2.73, $p = .161$, odds ratio =

1.00, $p = .059$, respectively).

Importantly, the main effects for treatment were explored and were not in the expected

direction. To illustrate this, Table 10 shows associations between treatment and re-offending

These results suggest that offenders that had any treatment were more likely to have any re-

offense (42.0%) and violent re-offense (16.9%), in comparison to offenders without treatment

(26.6% and 6.2%, respectively). A similar pattern of results was found for offenders that

completed treatment, who had higher rates of any re-offense (42.9%) or a violent re-offense

(17.0%) than offenders who did not complete treatment (28.7% and 7.5%, respectively).

Similarly, results from independent samples t-test also indicated those with any re-offending,

$t(515) = -2.12, p < .05$ or with violent re-offending, $t(515) = -2.52, p < .05$ had significantly more

days in treatment than those who did not reoffend.

Table 9

Treatment as a moderator of offender groups' prediction of any or violent re-offense

	Any re-offense (n = 517)		Violent re-offense (n = 517)	
	B/SE	Odds ratio	B/SE	Odds ratio
Any Treatment				
Step 1				
White/Other	-.04/.19	0.96	-.60/.38	0.55
Non-Violent/Violent Offender	.43/.16	1.54**	.83/.29	2.29**
Any Treatment	.52/.17	1.69**	.99/.33	2.68**
Step 2				
Any Tx Interaction Term	.08/.34	1.09	1.1/.84	3.13
Treatment Completed				
Step 1				
White/Other	-.03/.19	0.97	-.59/.38	0.56
Violent/Non-Violent Offender	.45/.16	1.57**	.86/.29	2.36**
Treatment Completed	.44/.16	1.56**	.86/.29	2.37**
Step 2				
Tx Completed Interaction Term	-.05/.32	.96	1.0/.72	2.73
Days In Treatment				
Step 1				
White/Other	-.02/.19	0.98	-.56/.38	0.57
Violent/Non-Violent Offender	.47/.16	1.60**	.89/.28	2.44**
Days In Treatment	.002/.001	1.00**	.003/.001	1.00**
Step 2				
Days in Tx Interaction Term	.001/.001	1.00	-.004/.002	1.00

Note. *p* < .05; **p <.01; parameters reported were based on Cox Regression analyses using days to re-offense as the dependent variables; Days in Treatment was centered for all regression analyses.

Table 10

Association between treatment and re-offending

Re-offense			
	Any Treatment (n = 517)		
Any Re-offense	No *n(%)*	Yes *n(%)*	Total *n(%)*
No	135 (73.4%)	193 (58.0%)	328 (63.4%)
Yes	49 (26.6%)	140 (42.0%)	189 (36.6%)
Violent Re-offense			
No	196 (93.8%)	256 (83.1%)	452 (87.4%)
Yes	13 (6.2%)	52 (16.9%)	65 (12.6%)
	Treatment Completed (n = 517)		
Any Re-offense	No *n(%)*	Yes *n(%)*	Total *n(%)*
No	164 (71.3%)	164 (57.1%)	328 (63.4%)
Yes	66 (28.7%)	123 (42.9%)	189 (36.6%)
Violent Re-offense			
No	223 (92.5%)	229 (83.0%)	452 (87.4%)
Yes	18 (7.5%)	47 (17.0%)	65 (12.6%)
	Any Re-offense (n = 517)		
	No *Mn(SD)*	Yes *Mn(SD)*	$t(df)$
Days in Treatment	77.96 (97.9)	98.37 (105.6)	-2.22(515)*
	Violent Re-offense		
	81.20 (99.9)	114.8 (105.5)	-2.52(515)*

Note. *p < .05; **p <.01; parameters reported were based on cross tabulation and t-tests.

Post-hoc Analyses

One possible explanation for the association between more treatment and higher risk for re-offending outcomes may be because treatment was associated with greater number of prior petitions and higher scores on SAVRY risk factors. To test this, a series of t-tests were performed (see Table 11). Results indicate that those who received any treatment showed significantly more prior petitions and had higher scores on the following SAVRY risk items: peer delinquency, anger management problems, low empathy/remorse, and ADHD problems. Similarly, those who completed treatment showed significantly more prior petitions and had higher scores on the following SAVRY risk items: peer delinquency, anger management problems, and low empathy/remorse. Thus, it does appear that receiving treatment and completing treatment were associated with a greater history of previous offending and higher risks for re-offending.

As a result, treatment main effects on recidivism were re-tested after controlling for prior petitions and the SAVRY risk items (peer delinquency, anger management problems, low empathy/remorse, and ADHD). To test this, a Cox regression analysis was performed using the race covariate, violent/nonviolent groups, prior petitions, SAVRY risk factors, and treatment variable (any, completed, days) predicting any re-offending and violent re-offending. Results indicated that treatment completed (odds ratio = 0.67, p = .011) predicted any re-offense, even controlling for the number of previous petitions and SAVRY risk factors. Similarly, results also indicated that any treatment (odds ratio = 0.50, p = .022) and treatment completed (odds ratio = 0.43, p = .004) predicted violent re-offense, even controlling for number of petitions and SAVRY risk factors.

Table 11

Association between risk factors and treatment

Variable	Any Treatment (n = 517)		
	No Mn(SD)	Yes Mn(SD)	*t(df)*
Prior Petitions	2.58(2.09)	3.80(2.9)	-5.03(515)**
Peer Delinquency	.69(.66)	.84(.70)	-2.35(513)*
Anger Management	.62(.72)	.88(.76)	-3.83(512)**
Low Empathy/Remorse	.34(.62)	.55(.68)	-3.38(511)**
ADHD	.47(.69)	.61(.80)	-2.06(512)*
Childhood Maltreatment	.25(.59)	.27(.53)	-.303(511)
Peer Rejection	.39(.56)	.36(.57)	.584(514)
Lack of Personal Support	.32(.60)	.34(.59)	-.435(513)
	Treatment Completed (n = 517)		
	No Mn(SD)	Yes Mn(SD)	*t(df)*
Prior Petitions	3.03(2.88)	3.64(2.53)	-2.53(515)*
Peer Delinquency	.70(.69)	.86(.72)	-2.56(513)*
Anger Management	.66(.74)	.89(.76)	-3.50(512)**
Low Empathy/Remorse	.39(.65)	.54(.66)	-2.55(511)*
ADHD	.52(.73)	.60(.78)	-1.26(512)
Childhood Maltreatment	.27(.59)	.25(.51)	.354(511)
Peer Rejection	.35(.55)	.38(.58)	-.662(514)
Lack of Personal Support	.31(.59)	.35(.60)	-.786(513)

Note. *p* < .05; **p <.01; ADHD = Attention deficit/hyperactivity difficulties.

Discussion

This study examined the differences in risk factors, re-offending, and the effect of treatment across offender groups. Overall, the results can be summarized by three main findings. First, the offender groups differed on risk factors, with specific differences noted between violent and non-violent offenders, as well as violent sex offenders and all other offenders. Second, the offender groups also differed on re-offending, with violent offenders showing higher rates of any re-offending and violent re-offending. Further, the relationship between offender type and violent re-offending was partially accounted for by group differences on SAVRY risk factors. Third, treatment showed main effects for predicting any re-offending and violent re-offending. However, these results were not in the expected direction, as treatment was associated with greater levels of re-offending.

The differences in risk factors across offender groups indicated that violent offenders were more likely than non-violent offenders to have higher scores for anger management and attention deficit/hyperactivity problems. This finding is consistent with previous research, which suggests that violent offenders tend to have greater difficulty with regulating emotions, particularly anger (Cornell, Peterson & Richards, 1999), as well as greater problems with inattention, impulsivity, and hyperactivity (Brigham, 2001). In addition, this study found that violent sex offenders were more likely to have higher scores on the SAVRY item assessing low empathy/remorse. This finding is again consistent with previous literature, which suggests that sex offenders are more likely to show high levels of CU traits (a constellation of traits that includes low empathy/remorse) (Caputo et al., 1999) and that those who show higher levels of CU traits use more violence during the commission of crimes. Further, the lack of

empathy/remorse displayed by this offender group may contribute to their more opportunistic style of offending (Caldwell et al., 2008).

Importantly, our study supports past research suggesting different developmental pathways for subgroups of antisocial youths (Frick & Viding, 2009). That is, the different pattern of risk factors for violent offenders and violent sex offenders maps onto research on suggesting different causal mechanisms for subgroups of antisocial youths. Specifically, previous research suggests that the causal mechanism underlying some violent offending can be attributed to problems with emotional disregulation and reactive aggression (Frick, Cornell, Bodin, Dane & Barry & Loney, 2003; Munoz, Kimonis, Frick & Aucoin, 2008), which is consistent with our finding that violent offenders had higher levels of anger and attentional problems. Further, this research also suggests that some antisocial youths show a callous and unemotional interpersonal style (e.g., callous disregard of others, and a lack of guilt, empathy, and remorse), which indicates problems related to conscience development, thrill seeking, and a lowered response to punishment cues (Essau, Sasagawa & Frick, 2006; Pardini, Lochman, & Frick, 2003). This would be consistent with the findings for the violent sex offenders in this study. Thus, even though we found no differences with regard to some developmental risk factors (e.g., peer delinquency, social isolation, childhood maltreatment), there appear to be a few specific underlying developmental mechanisms that contributed to their unique offending style.

Our findings suggest that violent offenders were more likely to re-offend (both violently and non-violently) during the 12-month follow up period. This finding is supported by previous research, which suggests that violent offenders tend to be more persistent offenders, show greater continuity in their offending patterns (Moffitt & Caspi, 2001), and are more likely to engage in

multiple types of offending, including non-violent offending (Farrington, 1998, Lykken, 1995).

Consistent with other studies (Farrington & Loeber, 2000), risk items were partial predictors of

the relationship between violent offending and re-offense. This suggests that the problems in

anger management and the problems in inattention, impulsivity, and hyperactivity may play an

important role in predicting future offending by this group. As a result, it suggests that

interventions that target these risk factors could be effective in reducing the risk for reoffending

for this group.

Interestingly, violent sex offenders did not differ from other groups on their risk for re-

offending, despite showing a clear risk factor for re-offending (i.e., lack of empathy/remorse).

One possible explanation for this is that because these offenders have lower empathy and

remorse than other offenders, they are better able to manipulate more situations and avoid getting

caught, in comparison to other offender groups. Following from this, it is also possible that their

official record underestimates the level of their actual delinquent behaviors. Another possible

explanation for the lower rate of re-offending in this group could be that violent sex crimes are

punished more harshly, which would lead to less street time and an inability to re-offend for this

group.

Our finding for the effectiveness of treatment, as it was implemented in these three

juvenile justice systems, was not encouraging. Specifically, treatment was related to more re-

offending. One possible explanation for this is that the offenders who scored higher on risk

factors from the SAVRY, and those with more serious offending histories, were more likely to

receive treatment, to complete treatment, and spend more days in treatment than others.

However, while this was the case in this sample, treatment was still associated with more

reoffending, even when controlling for past offending and higher levels of risk. Another possible

explanation for this association is that treatment may have had negative effects on youths in the sample, as many of the treatment programs were conducted in group settings. In support of this explanation, there is evidence to suggest that grouping antisocial offenders together is not effective and potentially harmful (Dishion, McCord, Poulin, 1999). Furthermore, the high-risk youth in our study may have responded more poorly to treatment, as indicated in studies that show high risk offenders tend to engage in more delinquency training and reinforce deviant behaviors in-group treatment settings (Weisz et al., 2005).

Limitations and Strengths

These findings should be interpreted in light of a few limitations. One limitation is that the number of non-violent sex offenders was too small to include in analyses, and therefore we were unable to test any of the hypotheses for this group. This finding is consistent with past research showing that the number of individuals who only commit non-violent sex offending is low in samples of adolescent offenders (Ikomi, Gibson, Samuels, 209). One possible explanation for this is that the majority of non-violent sexual offenses occur between family members or with an acquaintance (Dean & Malamuth, 1997). As result, many offenses may go unreported.

Another limitation is that this study was unable to account for "street" time when measuring re-offending. That is, some youth were in detention/OJJ secure facility during these 12 months and, thus, were not able to reoffend. This may have resulted in an under representation of re-offending, where the serious offenders who were most likely to offend were unable to do so because of incarceration. Further, this study only tracked re-offending for a 12-month time period. As a result, we were unable to make more long-term predictions about future offending behaviors.

Another limitation is that this study was unable to ensure the quality of treatment received by the youth. That is, not all youth received evidence-based treatments, and for those who did, this study was unable to ensure treatment fidelity. Therefore, these treatment results should be interpreted with caution.

The current study also had some considerable strengths. In particular, this study included a fairly large sample of violent and non-violent offenders, which allowed for more power when testing the strength of relationships between these two groups. Additionally, the risk factors used in this study yielded moderate to excellent interrater reliability, which meant that both the researchers and probation officers who rated the youth on the SAVRY generally had a high agreement when scoring these items. In addition, this study was able to follow offenders for a 12-month period, thus allowing for prediction of future offending in relation to the participant's offending history and risk factors. Another strength was that the rate of violent offending in this study was comparable to community (Fabio et al., 2006) and detained (Spain et al., 2004) samples of youth. Thus, our findings are generalizeable to other samples that show similar rates of violence.

Implications for Future Research and Practice

The results from this study highlight several key differences across subgroups of adolescent offenders. A number of these differences could inform future research as well as clinical practice with these populations. In particular, this study sheds light on the importance identifying risk factors that are unique to different groups of offenders. This study demonstrated that differences in individual risk factors vary across groups, and can help predict re-offending. Previous research suggests that treatment programs which target specific risk factors (Multi-Systemic Therapy and pharmacotherapy) can reduce risk for re-offending (Schaeffer & Bourdin,

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2005; Newcorn et al., 2008). However, more research is needed to determine whether treatments can have long-term effects for different types of offenders and how they need to be implemented to avoid any potential iatrogenic effect of the intervention.

This study provides further support for the need for specific treatment modalities for different types of offenders. Specifically, the offenders from this study differed in their level of different risk factors, which may help mental health providers in understanding the different needs of these populations. The goal of most treatment programs for juvenile offenders is to reduce the number of risk factors by using cognitive behavioral techniques that teach skill acquisition, reduce developmental problems (e.g., inattention, impulsivity, hyperactivity), decrease destructive behaviors, and increase prosocial factors (Glick, 2003; Henggeler et al., 2009). For example, treatments such as anger replacement therapy (Goldsein, 2004) and multi-systemic therapy (Shaeffer & Bourdin, 2009) have been successful at reducing offenders' level of aggression, inattention, hyperactivity and impulsivity. Other treatment programs have shown some reductions in conduct problems in children with high CU traits by using positive reinforcement to teach victim empathy and increase parental involvement (Hawe & Dadds, 2007). Given this information, future treatments that incorporate these techniques would benefit from the information provided in this study, as it highlights the importance of risk factors and their relation to future offending behaviors, especially for violent offenders.

This study also sheds light on the importance of low empathy/remorse within different offender groups. Specifically, our study found that in comparison to all other offenders, violent sex offenders were more likely to show low empathy/remorse. Previous studies indicate that the more successful treatment programs with offenders with CU traits can lead reductions in recidivism for these youth (Caldwell et al., 2007; Hawe & Dadds, 2007). In their study on

"potentially psychopathic" offenders, as assessed by the PCL:YV, Caldwell and colleagues (2006) found that groups that received intensive treatment were less likely to recidivate in a 2-year follow-up period than offenders in the conventional treatment program in the correctional facility. These studies offer insight into providing mental health services to a group of offenders whose sexually aggressive, and delinquent behaviors present a serious problem to the community. Our study may help therapists recognize that youth with higher CU traits are in particular need of more intensive and specialized treatment to prevent criminal and sexual recidivism

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