A COMPARISON OF SOCIAL INFORMATION PROCESSING IN JUVENILE
SEXUAL OFFENDERS AND VIOLENT NONSEXUAL OFFENDERS

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SEXUAL OFFENDERS AND VIOLENT NONSEXUAL OFFENDERS

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Abstract

This research examines the common clinical belief that juveniles who sexually offend are particularly socially isolated and deficient in social skills. Using a validated model of social information processing, potential social cognitive deficits are examined in incarcerated male juveniles with histories of sexual offending as compared with incarcerated male juveniles who committed violent, nonsexual crimes. Specifically, the social information-processing constructs of normative beliefs, hostile attributional bias, social goals, outcome expectancies, and social self-efficacy are explored in these two groups. Juvenile sexual offenders in this sample differ from nonsexual offenders only in the areas of social goals and outcome expectancies. Juveniles who have committed sexual offenses are more likely to rate dominance as a strong social goal in peer conflict situations, but are less likely to expect aggressive behavior to result in positive outcomes. As compared with nonsexual offenders, juvenile sexual offenders appear particularly motivated by their internal conflicts and desires. Treatment strategies addressing only interpersonal skills may not be effective for juveniles who sexually offend; rather, goals and motivations for behaviors must be targeted.

Approved: Christine A. Gidycz

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Introduction

Overview

According to the Uniform Crime Reports of the Federal Bureau of Investigation (2001), adolescents committed approximately 17% of all sexual offenses reported during the years of 1994 to 1998. With the increasing recognition that a large proportion of sexual crimes are perpetrated by juveniles, researchers have begun to study this challenging population. Although clinicians believe social deficits to be strongly related to sexual offending, there is very little controlled research to demonstrate this finding or to clarify just what social deficits exist in this population. Clear empirical findings are needed both to inform theory development and to shape effective treatment protocols.

The social information-processing theory is a well-researched model of aggressive behavior in children and adolescents. According to this model, an individual’s behavioral response to social stimuli can be predicted from the individual’s processing in each of six stages: encoding of social cues, interpretation of these cues, goal setting, response access, response evaluation, and behavioral enactment. Deficient processing at any or all of these stages has been shown to predict aggressive behavior and social maladjustment. These findings have been demonstrated consistently for school-aged children, adolescents, and juvenile offenders. Furthermore, interventions specifically targeting social information-processing deficits show promising results in reducing aggressive behavior in juvenile offenders.
Because clinical observation so often links social deficits to sexual offending, and because promising interventions exist to modify deficits, social information processing among sexual offenders is an important area for controlled research. Specifically, it will be clinically useful to compare the social information processing of juveniles who have committed sexual offenses to that of juveniles who have committed violent nonsexual offenses, as these two groups are often incarcerated together and receive similar interventions. Investigation of the deficits in these two populations may clarify specific treatment needs and inform treatment choices for juveniles in secure facilities. In order to explore potential social deficits in juveniles who commit sexual offenses, this study examines five constructs of social information processing in a juvenile sexual offender population as compared to juveniles who have committed violent nonsexual offenses.

Literature pertaining to the scope of juvenile sexual offending and the common characteristics of juvenile sexual offenses is summarized to provide the reader with a general description of these crimes as well as to emphasize the impact that sexual offenses perpetrated by juveniles have on society. Specific social, cognitive, emotional, and environmental characteristics of juvenile sexual offenders identified in the literature are then discussed, followed by a detailed description of the social information-processing model and relevant empirical findings.

**Juvenile Sexual Offending**

**Scope**

In the past few decades, recognition of the prevalence of sexual assault has resulted in increased examination of the causes and effects of this crime. As more attention has been focused on this area, researchers and juvenile justice departments have
begun to recognize that a large proportion of sexual assaults are committed by adolescents. The Uniform Crime Reports of the Federal Bureau of Investigation (2001) reported that males under the age of 18 committed 16.6% of all forcible rapes and 16.7% of all other sexual offenses in 1998. If the age for a juvenile sex offender is raised from 18 to 21, statistics are even more alarming; National Crime Survey victimization data indicated that 43% of all reported rapes between 1973 and 1982 involved perpetrators under age 21, and yearly statistics since 1982 have shown that the proportion of sexual assaults committed by juveniles has continued to increase (Vinogradov, Dishotsky, Doty, & Tinklenberg, 1988).

Conviction records are likely to underestimate the true incidence of sexual assault as well as the proportion committed by adolescents. An estimated 65% of children who are sexually assaulted never tell anyone, and less than half of all rape victims (56% when the assailant was a stranger, 45% when the assailant was an acquaintance) ever report the crime to the police (Vinogradov et al., 1988). Even when assaults are reported to the authorities, only a small minority of complaints result in an eventual arrest or conviction (Davis & Leitenberg, 1987). In fact, estimates of offense to arrest ratios for adolescent males are 25:1 for rape and 75:1 for aggravated assault (Blaske, Borduin, Henggeler, & Mann, 1989). Indeed, when statistics are gathered directly from children being treated in therapeutic programs for sexual assault as opposed to arrest records, an alarming 42% of the perpetrators are reportedly adolescents (Davis & Leitenberg, 1987).

Most sexually assaultive juveniles begin their perpetration at a young age; the large majority commit their first sexual offense before the age of 15, and many become sexually assaultive before the age of 12 (Shaw, 1999). In the past, sexual assaults
committed by juveniles were viewed as innocent experimentation or isolated events in normally developing teens. There is now considerable evidence, however, that this interpretation is invalid (e.g., Becker, Kaplan, Cunningham-Rathner, & Kavoussi, 1986). Sexually assaultive youth have typically had previous consensual sexual experiences, thus the experimentation explanation is not logical (Groth, 1977). Furthermore, sexual assaults often show an escalation in direct contact and violence over time. One third of convicted adult rapists and child molesters show a progression from nonviolent sex crimes (e.g., voyeurism, exhibitionism) during adolescence to more serious sexual offenses as adults (Vinogradov et al., 1988). One in three adolescents who commit sexual offenses will go on to commit more serious sexual assaults as adults (Moody, Brissie, & Kim, 1994). Estimates indicate that at least half of all adult sex offenders began offending in adolescence (Groth, Longo, & McFadin, 1982).

Of even greater concern is the number of individuals victimized by each sexual offender. Abel, Mittelman, and Becker (1985) found that a sample of 411 incarcerated adult sexual offenders averaged 533 offenses against 366 victims; among them, these offenders had perpetrated 218,900 sexual crimes on 138,137 victims. Average estimates for juvenile sex offenders (JSOs) indicate that they have committed from 3.6 to 9 sex offenses against 4 to 7 victims (Johnson & Knight, 2000; Shaw, 1999). In a larger study of 561 sexual offenders aged 13 to 76, individual adults had committed an average of 380 offenses, whereas individual adolescents had already committed an average of 6.8 sexual offenses (Abel & Rouleau, 1990). These disturbing statistics indicate that sex crimes in adolescence may be the start of a lifelong pattern of offending that affects the lives of an
enormous number of people. This underscores the critical need for early intervention to break the cycle of violence.

Offense Characteristics

A few studies have specifically examined the characteristics of juvenile sex offenses, both for juveniles who offend against peers and those who offend against children. In a descriptive study of a sample of 305 JSOs (297 male and 8 female, mean age 14.8), Fehrenbach, Smith, Monastersky, and Deisher (1986) found that most victims were under the age of 12, with almost half under the age of 6. Forty percent of the total offenses were rape and/or indecent liberties (sexual touching or fondling short of penetration) involving children under 7. Most victims were female, and offenses often took place during babysitting. Rape was more common when victims were older, and adult victims were much more likely to be strangers to their assailants. With children, hands-on offenses almost always involved relatives or acquaintances, presumably because they were more accessible.

While 23% of reported offenses involved no use of intimidation or threat, intimidation or bribery was used in 28% of assaults, threat of force or a weapon in 12%, physical force in 33%, and weapons were used in 4% of the offenses. Twenty-two percent of the adolescent offenders reported that they continued the offense despite the victim’s expression of hurt or fear, suggesting that they were aware that their actions were assultive and harmful.

In contrast to data from adult sex offenders, alcohol and other drugs were involved in only 6% of the offenses committed by this sample of adolescents (Fehrenbach et al., 1986). These youth came from all social classes, with a large
proportion of middle-class juveniles as compared to other delinquents. Over half of the offenders had committed at least one prior sex offense, and almost half had at least one prior nonsex offense. Most likely, these numbers are underestimates, as many of the juveniles were in the disposition stage of the justice process, and would therefore be more hesitant to acknowledge previous sexual crimes.

In a study that specifically examined the characteristics of 67 peer-victim JSOs who had admitted their crime(s), Vinogradov and colleagues (1988) identified offender and offense traits that clearly differed from those described by Fehrenbach and colleagues. For example, in the Vinogradov et al. study, 72% of the offenses reportedly occurred while the juvenile was under the influence of substances. This is a striking difference, particularly considering that the study conducted by Fehrenbach and colleagues included a sub-sample of juveniles who offended against peers or older victims. The Vinogradov et al. study specifically examined JSOs with peer victims who were incarcerated in a top security facility, and were thus the most extreme cases of juvenile sexual assault; this may account for the discrepant findings.

Consistent with the Fehrenbach et al. study, the rapes committed by this sample of juveniles (Vinogradov et al., 1988) against victims aged 15 to 29 were typically stranger assaults. Nearly a third of the juveniles were in the process of committing another crime and had not premeditated the rape. There was often some type of verbal argument or interaction prior to the assault that resulted in the offender’s decision to rape. Only 21% of the juveniles reported that they had premeditated their rapes. Vinogradov et al. concluded from these findings that juveniles who offend against peers consist of subgroups of opportunistic offenders and premeditators.
Rapes were more often committed over the weekend between 8pm and 2am during the summer months, and close to a third of the rapes involved more than one assailant (Vinogradov et al., 1988). These assaults appear to have been peer motivated to a much larger extent than were sexual crimes against children.

The findings in these two studies suggest that sexual assaults committed against peers and adults have very different characteristics than do sexual assaults committed against children. It is important to keep in mind, however, that no direct comparisons have been made between the offense characteristics of these two groups. There has, however, been some comparison of the juveniles who commit these two types of crimes (i.e., sexual offenses against children versus sexual offenses against peers or adults). For instance, JSOs with child victims have demonstrated significantly higher empathy scores on the Interpersonal Reactivity Index both before and after treatment than have JSOs with peer victims (Pithers, 1994). Furthermore, parent interviews along with data from schools and social agencies indicate that juveniles who sexually assault peers are less likely to be socially isolated, have learning problems, and have a history of sexual abuse than are juveniles who assault children at least five years younger than themselves (Awad & Saunders, 1991). These findings suggest that there are concrete differences among a group of juveniles who offend exclusively against children much younger than themselves and a group who sexually assault peers or adults. Therefore, in the review of the research to follow, JSO characteristics will be distinguished between these two groups where findings support such a distinction.
Recidivism

Research on recidivism rates for juvenile sexual offenders (JSOs) has identified a re-arrest rate of approximately 15% for adolescents who have received treatment (e.g., Smith & Monastersky, 1986). Although recidivism rates for adolescent sexual offenders appear to be relatively low, the cost of any re-offense is high. Furthermore, the concurrent low rate of reporting and conviction suggests that the rate of actual reoffending may be significantly higher than is reported. Righthand and Welch (2001) noted in their review of the literature that 79% of a sample of juveniles arrested for sexual assault reported prior sex offenses, many of which did not result in adjudication. Additionally, when JSOs who had completed a treatment program were asked directly about their reoffending after treatment, the self-reported sexual reoffense rate was nearly twice as high as the recorded recidivism rate (Bremer, 1992). Indeed, even those adolescents who are repeat offenders and continue committing sexual offenses well into adulthood may not be arrested for their juvenile sexual offenses; one study found that although only 37% of adult sexual offenders had official records documenting their juvenile sex offenses, 55% acknowledged that they had committed sexual offenses as juveniles (Knight & Prentky, 1993). Furthermore, adult sex offenders have reported committing two to five times as many sex crimes as the number for which they were apprehended (Groth et al., 1982).

Treatment for Juvenile Sex Offenders

The first state-operated program for treating juvenile sexual offenders started in 1979 (Jacobs, Kennedy, & Meyer, 1997), demonstrating the relatively recent recognition of the seriousness of this offense. Since that time, treatment of JSOs has spread widely
throughout the country. As of 1992, there were over 200 residential and almost 500 community-based programs in the United States specifically for the treatment of JSOs (Barbaree et al., 1993). Unfortunately, research on sexual offending by adolescents has not kept pace with this burgeoning treatment system. As a result, there is little consensus on the most effective treatment for this population, and even less empirical data to guide clinicians. There are at least 338 different types of therapies and techniques currently being used with JSOs (Burke, 2001), providing clear evidence as to the need for research to unify this field.

Findings regarding typical characteristics of sex offenders have several implications regarding appropriate treatment. For instance, JSOs have been shown to be poor at identifying their emotions, thus treatment should include emotion recognition and communication skills (including body language) to use in identifying one’s own feelings as well as the feelings of others (Lakey, 1992). Additionally, low verbal IQ (significantly below performance IQ) correlates with sexually inappropriate behavior. Interventions must consider the effects of the verbal deficits on adolescents’ abilities to comprehend and learn from treatment, and may need to rely more on behavioral treatment strategies (Righthand & Welch, 2001; Shaw, 1999).

Although recognition of the prevalence of juvenile sex crimes has clearly increased and there are larger numbers of juveniles being referred for sex offender-specific treatment, very little work has been done to empirically validate any form of treatment. Indeed, research is still seeking to develop a solid understanding of the correlates of juvenile sexual offending. Davis and Leitenberg (1987) reported that typical components of JSO treatment include: (1) reduction in denial and increased acceptance of
responsibility and accountability for sexual offenses; (2) emphasis on increasing the youths’ empathy, or understanding of the impact of the assault on the victim; (3) exploration of specific motives and antecedent events (internal and external) that precipitated the sexual offenses and the development of coping strategies to deal with these; (4) examination and resolution of the adolescent offender’s own sexual victimization experiences; (5) education about human sexuality, sexual values, and sex roles; (6) use of techniques to eliminate deviant arousal patterns and fantasies, including various masturbatory-reconditioning procedures and aversive-conditioning procedures; (7) training in interpersonal, dating, and social skills; (8) training in anger management and assertiveness; and (9) use of family therapy to promote positive parenting behaviors and to successfully reintegrate the offender into the family. To this list, Lakey (1992) adds identification of cognitive distortions and thinking errors as well as reduction of impulsiveness by slowing down the thinking process and enhancing self-control.

The most common treatment modality for JSOs involves cognitive-behavioral or psychosocial group therapy, and sometimes includes psychopharmacology (Shaw, 1999). Psychoeducation provided in groups typically focuses on sexuality, sexual deviancy, cognitive distortions, interpersonal and social behaviors, and strategies for coping with aggressive and sexual impulses. Consistent with other reports, Shaw determined that the most common specific modules include victim empathy, cognitive restructuring, anger management, assertiveness training, social skills training, sexual education, stress reduction and relaxation management, and awareness of the effects of one’s past life experiences on present thoughts, feelings, and behaviors. Covert sensitization, assisted covert sensitization, imaginal desensitization, olfactory conditioning, satiation
techniques, and sexual arousal reconditioning are common means of addressing deviant sexual arousal. Past studies have found success at increasing nondeviant arousal by modifying arousal to deviant sexual fantasies, which supports the hypothesis that deviant fantasy behavior spurs deviant sexual action and impedes normal sexual adaptation (Johnson & Knight, 2000).

The most widely used outcome measure of treatment success is that of recidivism rates, though as discussed previously, this accuracy of recidivism as a measure of reoffending is questionable. Smith and Monastersky (1986) identified a recidivism rate of 14.3% over the 1 to 4 years following treatment. In a review of the literature, Shaw (1999) reported that estimated recidivism rates for untreated sex offenders are about 40%, but recidivism rates for sex offenders who received treatment are much lower, between 5 and 15%. This suggests that the risk for reoffending is significantly reduced by receiving treatment.

Those juveniles who do reoffend have been found to have higher rates of truancy, use of threat or force during the offense, and cognitive distortions such as blaming the victim. Sexual recidivism has also been related to higher levels of psychopathology and deviant sexual arousal (Righthand & Welch, 2001). Although often the targets of treatment, denial, abuse history, and empathy deficits have not been empirically associated with sexual recidivism. There is furthermore no evidence to support the widely held view that interventions for JSOs must be lengthy, offense-specific, and oriented around peer group therapy.

The only treatment that has any empirical validation is Multi-Systemic Therapy (MST), which is an intensive, home-based, and time-limited intervention. MST has been
shown to be more effective than individual counseling in treating JSOs, but only one sound study has been conducted (Borduin, Henggeler, Blaske, & Stein, 1990). This study used random assignment to treatment and equivalent face-to-face treatment time for the two groups, but the sample size for the study (n=16) was extremely low, limiting the generalizability of the data. These researchers found an enormous effect, with a 12.5% recidivism rate in the MST treatment group and a 75% recidivism rate in the group who received individual therapy over a three-year period post-treatment. Given other recidivism rates reported in the literature, however, the 12.5% rate appears consistent with typical findings, while the 75% rate is far above that found even in JSOs with no treatment. Given this anomalous finding and the low sample size in the study, the effectiveness of MST in treating JSOs remains unclear.

Clearly there is a great need for additional empirical work to clarify the factors of treatment that are related to low recidivism rates and healthier adolescents. The enormous growth of interventions has proceeded out of necessity given the growing numbers of identified juvenile sex offenders, but there is not yet adequate knowledge in the areas of identifying at-risk youth, understanding the causes of their behavior, or determining the most appropriate treatment strategies (Righthand & Welch, 2001).

Summary of Juvenile Sex Offending

Given the large proportions of sex crimes being committed by adolescents, as well as the overwhelming numbers that they may go on to victimize if left untreated, it is crucial that we explore and understand predictors and mediating characteristics of juvenile sexual offending so that these can be adequately addressed in both prevention and intervention activities. While there is extensive literature examining adult sexual
offending behaviors and characteristics, the literature pertaining to juveniles is relatively small. What research there is suggests that much of the adult literature is not generalizable to juveniles. However, treatment programs for juveniles are almost entirely replications of adult programs, with very little research on treatment efficacy (Righthand & Welch, 2001). Given the magnitude of juvenile sexual offending and the number of victims involved, it is crucial that this area be explored further.

Characteristics of Juvenile Sex Offenders

In exploring the characteristics of juvenile sex offenders, it is valuable to compare JSO findings with typical characteristics of nonsex-offending delinquents and normative adolescents. Such comparisons can clarify any unique etiological factors or co-occurring conditions specific to JSOs as compared to other delinquent youth. Past research has identified multiple problem areas that appear to be characteristic of JSOs, making it difficult to clearly define this group of youth. In comparison to adolescent norms, sexual offenders who completed the High School Personality Questionnaire were found to be less intelligent and more detached, restrained, self-indulgent, frustrated, demanding, nervous, and threat-sensitive (Moody et al., 1994). Clinicians have suggested that etiologically significant factors in sexually offending behavior may include: poor social skills, feelings of male inadequacy, low self-esteem, fear of rejection, anger toward women, atypical erotic fantasies, a history of sexual abuse, and exposure to adult models of aggression, dominance, and intimidation (Davis & Leitenberg, 1987). The most commonly discussed characteristics of JSOs include the presence of impaired social and interpersonal skills, prior delinquent behavior, impulsivity, academic and school
problems, family instability, family violence, abuse and neglect, and psychopathology (see Shaw, 1999, for a review).

Previous studies of JSOs have many methodological limitations, thus conclusions drawn from these studies must be made cautiously. Many studies lack appropriate comparison groups such as violent nonsexual offenders, nonviolent offenders, or nonoffenders with similar demographic characteristics. Additionally, data is often derived from clinical impressions and unstandardized instruments rather than clearly defined and validated measures (Blaske et al., 1989). Furthermore, many important characteristics have gone unexplored. Subgroups of JSOs are rarely examined, though adult literature suggests that there are differences in characteristics and effective interventions for subgroups of pedophiles, rapists, and exhibitionists (Davis & Leitenberg, 1987).

Social Isolation

One of the most common clinical beliefs about the characteristics of JSOs is their relative social isolation and concurrent significant deficits in social competence (Fehrenbach et al., 1986; Knight & Prentky, 1993). In fact, many investigators have theorized that social deficits may be a causal component in sexual offending (e.g., Barbaree, Hudson, & Seto, 1993). Deficits identified through clinical interviews include lack of assertiveness, poor intimacy skills, and social isolation. Evidence suggests that low social competence may be particularly related to sexual offending during adolescence; Knight and Prentky (1993) found that adult sexual offenders who had committed their first offenses in adolescence were much more likely to display social deficits based on self-report of friendships and social isolation than were those who committed their first offenses in adulthood.
As compared to 17% of juvenile delinquents with nonsexual offenses, 46% of sex offenders have been identified as loners through self-report and clinical observation (Awad, Saunders, & Levene, 1984). Fehrenbach and colleagues (1986) found that 65% of their sample of JSOs demonstrated significant social isolation; one third reported having no friends at all, while another third of the youth had a few friends, but were not close with anyone. Offenders who committed rape against children, peers, or adults were least likely to have close friends, with 74% of this population reporting no close friends. The majority of the JSOs (63%) who committed rape in this sample perpetrated against children at least 5 years younger than themselves.

Clinical observation suggests that JSOs show little skill in establishing and maintaining close friendships, and lack assertive and other social skills, which results in serious and chronic social isolation (Davis & Leitenberg, 1987). The literature on adult sexual offenders suggests that those who commit offenses against children may be more socially deficient than those who commit offenses against peers (Hudson & Ward, 2000). This research has not been clearly replicated with adolescents, but there are differences in the social patterns of juveniles who sexually offend against children as compared to those who offend against peers and adults. JSOs with child victims frequently turn to younger children for all relationships, presumably because they are physically, socially, and emotionally easier to control (Moody et al., 1994). On the other hand, those with peer victims tend to demonstrate less desire to initiate interpersonal contact with others; they appear detached and show desire to avoid close relationships (Ford & Linney, 1995). Low bonding to family and school increases the likelihood that adolescents who do develop peer relationships will associate with deviant peers, which is in turn the primary
determinant of delinquent behavior (Blaske et al., 1989). Indeed, juveniles with peer victims are more likely than those with child victims to interact with delinquent peers and engage in a variety of antisocial behaviors (Johnson & Knight, 2000).

It is theorized that the demonstrated social isolation from peers and family allows JSOs to violate a generally prosocial belief system and behave antisocially by sexually offending (Righthand & Welch, 2001). Attachment theorists would propose that poor social relationships are caused by inadequate bonding with parents due to abusive or inconsistent parent-child interactions. Consistent with this is the finding that a very high percentage of JSOs have experienced prolonged separation from their parents, abuse and neglect, and parental rejection. Inadequate attachment to parents may result in a lack of trust in other people as well as deficits in competent social skills (Marshall, Hudson, and Hodkinson, 1993).

Importantly, research on the social deficits in JSOs generally relies on clinical impressions and juvenile self-report of friendships. Specific standardized measures of social competence have not been well utilized in distinguishing between the social skills of JSOs and other adolescents. Only two studies using standardized questionnaires to investigate social differences between JSOs and other adolescents were identified. Ford and Linney (1995) examined the offense characteristics of 89 recently adjudicated adolescents and categorized them as sexual assaulters (with peer-aged or adult victims), child molesters (with victims at least 5 years younger), violent nonsex offenders, or status offenders. Based on data from a structured interview and a standardized measure of social skills and behavior, these researchers found that child molesters report the greatest desire
for control and dominance in interpersonal situations. In contrast, rapists were identified as more detached from social relationships.

Katz (1990) utilized measures of assertiveness, heterosocial competence, social anxiety, self-consciousness, self-esteem, and loneliness to compare a group of juveniles who committed sexual offenses against children with comparison groups of nonsexual-offending delinquents and nondelinquent high-school students. Katz found that sexual offenders reported feeling more loneliness and social anxiety than did either of the other two groups. JSOs described themselves as less assertive and less socially competent, and also demonstrated increased feelings of estrangement from others, more interpersonal isolation, and less emotional bonding to peers. In contrast, no significant differences in social skills were identified between delinquents with nonsexual offenses and nondelinquent youth. These findings suggest that while nonsexual offenders demonstrate average social skills, juveniles who commit sexual offenses experience global social maladjustment. This evidence is strengthened by the similarity of findings on several measures of social adjustment. These conclusions are consistent with clinical observations reported throughout the literature on juvenile sexual offenders and provide more scientific support for the premise that JSOs may be distinguished by the their social deficits.

As with many other hypothesized characteristics of JSOs, poor social functioning shows only modest empirical confirmation at this time. Regardless, the consistency of clinical and observational evidence supports continued investigation of social skills and specific deficits in the population of juveniles who commit sexual offenses.
Although social adjustment is the primary characteristic of interest in the current study, other hypothesized characteristics of JSOs are also important to consider in making a full assessment of juveniles who sexually offend. The literature pertaining to other relevant characteristics is reviewed below.

Other Relevant Characteristics

Delinquency.

JSOs are likely to participate in other forms of delinquency and are frequently adjudicated for both sexual and nonsexual offenses. In a study of 94 JSOs, 63% of those who assaulted peers or adults and 50% of those who assaulted younger children had a history of nonsexual antisocial behavior as indicated by delinquency records, parents, and school officials (Awad & Saunders, 1991). Similarly, Ryan and colleagues (1996) collected data on 1600 JSOs from 90 providers in 30 states; 63% of these JSOs had reportedly committed previous nonsexual delinquent offenses. The lack of comparison groups in these studies prohibits the formation of clear conclusions, but given the high rates of delinquent behavior among JSOs, it is not surprising that many characteristics of JSOs and other juvenile offenders are quite similar. There are specific differences in the two groups of juvenile delinquents, however. In a comparison of 59 JSOs and 132 nonsexual juvenile offenders, Milloy (1994) found that JSOs had higher rates of sexual abuse, major mental health problems, lack of appropriate peer relationships, and problems with sexual identity. As compared to other juvenile delinquents, juvenile sex offenders are more likely to cross all social classes and have lower rates of truancy, alcohol abuse, destruction of property, defiance, stealing, and temper outbursts (Awad, Saunders, & Levene, 1984).
Past Victimization.

Both retrospective and prospective studies have demonstrated that being physically harmed by an adult is a risk factor for later violent behavior toward others (Dodge, Bates, & Pettit, 1990). Juvenile sex offenders are more likely than other adolescents and even other delinquents to have been exposed to violence, including physical and sexual abuse (Ford & Linney, 1995). Indeed, 41% of JSOs have reported histories of physical abuse or neglect, as compared to only 15% of a matched group of delinquents (Davis & Leitenberg, 1987). In a study comparing juvenile sex offenders with adolescents in acute inpatient facilities, the adolescent sex offender group showed evidence for two to five times more trauma than inpatients across the categories of sexual abuse, physical abuse, neglect, emotional abuse, and domestic violence (Friedrich, Gerber, Koplin, Davis, Giese, Mykelbust, & Franckowiak, 2001). Juveniles with child victims are the most likely to have experienced intrafamily violence, as compared to juveniles with peer victims, status offenders, and nonsexual violent offenders. In contrast, nonsexual violent offenders are more likely to have been shot or seen someone else killed (Ford & Linney, 1995).

Estimates of the percentage of juvenile sex offenders who themselves have been victims of child sexual abuse range from 19 to 92% (Davis & Leitenberg, 1987; Katz, 1990; Ryan et al., 1996; Moody et al., 1994; Shaw, 1999; Veneziano et al., 2000). General rates of substantiated sexual abuse in JSO populations are around 50%, which is twice the rate of sexual abuse seen in psychiatric inpatients (Friedrich et al., 2001). Among JSOs, those with child victims are most likely to have been sexually abused (Ford & Linney, 1995), while those with peer victims are more likely to have witnessed
sexually abusive behaviors toward other family members (Knight & Prentky, 1993). In addition to hands-on abuse such as molestation, JSOs were also exposed to pornographic material at earlier ages than a comparison group of delinquent juveniles, and juveniles with child victims were the most frequently exposed. Among JSOs, the age of first exposure to pornography is typically between 5 and 8 (Ford & Linney, 1995).

The wide variation in estimates of abuse may be related to sample characteristics as well as the way in which information on child abuse history is gathered (e.g., clinical interview, questionnaire, client records). For example, male adolescents who molest younger boys have a particularly high incidence of child sexual abuse (Davis & Leitenberg, 1987). Additionally, a quarter of juvenile sexual offenders begin offending before they turn 12. Preadolescent JSOs have very high rates of abuse histories (Araji, 1997). Indeed, childhood experiences of sexual abuse may be predictive of early-onset sexual offending, making it more likely for these youth to begin offending in adolescence. Knight and Prentky (1993) reported that adult sexual offenders who began offending in adolescence were significantly more likely to have been sexually abused themselves in childhood than were adult sexual offenders who began offending as adults. Furthermore, those who committed sexual offenses in adolescence experienced more severe sexual abuse that began at an earlier age.

Another factor pertaining to the varying rates of child sexual abuse in JSOs may be the definition used for abuse. Although abuse is generally viewed as a dichotomous variable, with an individual either having experienced abuse or not, in reality this abuse is experienced on a continuum of frequency and severity. For instance, Shaw (1999) noted that while 30% of a sample of JSOs in a residential setting did not have histories of direct
sexual abuse, they almost always came from homes where they were prematurely exposed to sexual violence, promiscuity, and pornography. Viewing child sexual assault as a continuous variable with many levels of both frequency and severity provides us with a more realistic measure of experience, as well as a more powerful statistical tool in performing correlations with other factors such as sexually abusive behavior. There is little empirical research that classifies abusive experiences on a continuum, however.

Mechanisms thought to contribute to the relationship between child sexual abuse and later sexual offending include reenactment of the abuse, attempts to achieve mastery over conflicts resulting from the abuse, and conditioning of deviant sexual arousal to fantasies of assault (Veneziano, Veneziano, & LeGrand, 2000). Consistent with these theories, Veneziano et al. (2000) found that for 74 JSOs in residential treatment, victim age, sex, and relationship to the offender were all significantly predicted by the offender’s own specific abuse history. For instance, if the offender was sexually abused before the age of five, he was more than two times as likely to choose victims under the age of five. Moreover, the specific abusive act perpetrated by the offender was highly related to the offender’s victimization history. Boys who had been anally raped were 15 times more likely to abuse their victims in this way.

Of course, not all victims of child sexual abuse go on to become sexual offenders. Research on predictors of later sexual offending indicates that youth who become sexually aggressive were younger at the time of their victimization, had higher rates of abusive incidents, longer time periods between abuse and disclosure, and lower levels of perceived family support following the disclosure of the abuse (Hunter & Figueredo, 2000). Additional factors thought to be associated with increased risk for assaultive
behavior based on clinical observation include sexual arousal at the time of the abuse, uncertainty and confusion about sexual identity, and compensatory hypermasculinity (Shaw, 1999).

Abused JSOs begin sexually offending others an average of 1.6 years earlier than a similar nonabused group, have twice the number of victims, are more likely to have both male and female victims, and are less likely to limit their offending to family members (Cooper, Murphy, & Haynes, 1996). Furthermore, a comparison of sexually abused and nonabused JSOs demonstrated that those with sexual abuse histories manifest greater psychopathology and interpersonal problems. Indeed, almost 30% of JSOs with abuse histories show symptoms of severe depression based on clinical interviews (Cooper, Murphy, & Haynes, 1996). Abused children have specific deficits relative to other children that may make their sexual offending more likely. For instance, children who have been sexually abused have difficulty with perspective taking and emotion identification in others. This is consistent with the finding that JSOs evidence cognitive distortions such as blaming the victim that are also associated with increased rates of sexual reoffending (Knight & Prentky, 1993).

**Psychopathology.**

Several studies have examined the psychopathology most common in JSOs, using data from standardized assessment tools as well as clinical diagnoses. These studies have several methodological shortcomings, such as low sample size, lack of comparison groups, and failure to control for Type I errors in their statistical analyses. Conclusions about generalizability are therefore limited.
In comparison to a matched group of juvenile offenders with no history of sexual perpetration, JSOs in residential treatment demonstrated higher levels of hyperactivity and restlessness, depression and anxiety, encopresis, running away, early-onset neurological conditions, learning disorders, early health problems, and fire-setting histories (Bagley & Shewchuk-Dann, 1991). Similarly, Ford and Linney (1995) found that juveniles who committed sexual offenses against children were more likely than other delinquent youth to experience dysphoric mood and anxiety. In contrast, delinquents with no history of sexual offending showed more aggression toward peers and siblings as well as more destructive behavior towards possessions and property (Bagley & Shewchuk-Dann, 1991).

Eighty percent of JSOs have been found to function below age-appropriate levels on ego development as measured by the Loevinger Ego Development Scale, demonstrating a relative deficit in understanding of right versus wrong and a greater likelihood of focusing on need gratification (Gomes-Schwartz, 1984). Likewise, 63% of JSOs in a residential facility scored below standard norms on a measure of anger control skills, as compared to only 26% of other incarcerated delinquents measured. Findings could not clarify whether the JSOs had greater anger levels in general or simply had less skill in controlling the anger they had (Van Ness, 1984).

**Academic Problems.**

Past research has generally found that juvenile sex offenders have an unusually high rate of learning disabilities and general academic problems, with 50-80% evidencing learning problems (Awad & Saunders, 1989; Ford & Linney, 1995; Moody et al., 1994; Shaw, 1999). Comparison data is frequently lacking in this research, however, making it
difficult to determine whether the high rates of identified learning problems among JSOs
differentiate them from other delinquent juveniles. In the few studies that do provide
comparison data, it appears that school performance is equally problematic in JSOs and
in other samples of delinquent adolescents, suggesting that this is a common area of
difficulty for adolescents who commit crimes (Davis & Leitenberg, 1987).

Research varies as to the typical level of intelligence of JSOs, with some studies
suggesting that JSOs are similar to other delinquent populations in having borderline to
low average intelligence (e.g., Ford & Linney, 1995), and other studies finding JSOs to
be of average intelligence (e.g., Fehrenbach et al., 1986). Generally, JSOs show slightly
lower IQ scores and more subtest variability than average. Closer examination shows that
more JSOs than expected fall into the borderline range of intellectual functioning; a
comparison of JSOs and other delinquents found that 25% of JSOs had IQ scores below
80, while only 11% of other delinquents demonstrated scores in this range (Atcheson &
Williams, as cited in Ferrara and McDonald, 1995). On the other hand, less than expected
fall into the high average range, and more than expected fall within the very superior
range (Langevin, Marentette, & Rosati, 1996), further supporting the conclusion that
JSOs are a heterogeneous population.

Ferrara and McDonald (1995) argue that the finding of a high proportion of
borderline IQ scores among JSOs may be attributed to higher rates of neurological
impairment. Interestingly, juvenile sex offenders show an extremely high rate of
neurological symptoms, with one third testing in the impaired range on the Halstead-Reitan
neuropsychological assessment (Langevin, Marentette, & Rosati, 1996). In an
investigation of possible neurological deficits, sleep electroencephalographs (EEG’s)
were performed with juvenile offenders. In comparison with 3.3% of violent nonsexual juvenile offenders, 23.5% of JSOs evidenced grossly abnormal EEG’s or grand mal seizures (Ferrara & McDonald, 1995). Clearly with a quarter to a third of JSOs demonstrating some form of neurological impairment, resulting deficiencies in concentration, comprehension, and memory must be considered in developing and implementing interventions for this population (Righthand & Welch, 2001).

**Cognitive Distortions.**

Many researchers have reported on specific cognitive distortions and personal beliefs that are characteristic of juveniles who sexually offend. In general, JSOs are more likely than normative adolescents to endorse traditional sex-role stereotypes, male dominance, and rape-supportive myths and to have negative and stereotypical attitudes toward women (e.g., White & Koss, 1993). Based on clinical observation, older JSOs have been found more likely to minimize the seriousness of their abusive behavior despite the fact that their sexual violence is escalating (Righthand & Welch, 2001).

After conducting clinical interviews, Lakey (1992) concluded that juvenile sex offenders, specifically those who assault peers or adults, report believing that they are not bound by societal rules. They believe themselves to be special, and appear to think that there is nothing wrong with their behavior because rules do not apply to them. Indeed, they have been shown to reject reality in favor of their own insight into the truth; they have an idea, form an opinion based on it, and thereafter believe that this opinion is an established fact. In other words, their rule development appears to be based on internal logic and opinions, rather than external constraints and laws. Lakey concluded that JSOs distort the definition of appropriate behavior to fit their own antisocial attitudes,
demonstrating primitive conscience. Because of their confidence in their own opinions and insight, JSOs may be less likely to search for further information to support their beliefs.

Lakey (1992) compiled a list of common myths held by juvenile sex offenders treated in a private residential facility for delinquent boys. The beliefs reported by these youth suggest misinformation and cognitive distortions related to sexuality, reproduction, sexual assault, sexually transmitted diseases, male dominance, and rape-supportive myths, but there is no comparison-group data to demonstrate that these beliefs are unusual for adolescent males. Consistent with their belief in their own dominion, JSOs with peer victims in this residential population showed a tendency to minimize responsibility when confronted, playing down the harm that their behavior may have had on others. They were likely to blame the victim if held accountable for their behavior.

Cognitive distortions may be implicated in the use of force during sexual offenses. Johnson and Knight (2000) found that hypermasculinity, through its role in misogynistic fantasy behavior, significantly discriminated verbally and physically coercive juvenile offenders from those offenders who did not report using force in offending. Hypermasculinity is the extent to which individuals hold macho attitudes like risk taking, power seeking, and male dominance. Boys who emphasize sexuality and conquest as a means of peer status and self-esteem may use coercion to induce sexual contact with females. In a path analysis, Johnson & Knight found direct links to sexual perpetration from history of sexual abuse, misogynistic fantasies, and hypermasculinity. Hypermasculinity was in turn predicted by sexual abuse, physical abuse, juvenile delinquency, and alcohol abuse. The Johnson and Knight study (2000) suggested that
although substance use was not directly predictive of sexually coercive behavior, alcohol may be a salient releaser for those already predisposed to impulsivity and sexual perpetration by an undercontrolled temperament and rape myth acceptance. Continued exploration of cognitive distortions among JSOs will be valuable, as cognitive distortions in JSOs are not only associated with use of force in sexual assaults, but also with recidivism (Demby, 2001; Knight & Prentky, 1993).

**Summary of JSO Characteristics**

In summary, research suggests that JSOs have much in common with other violent juvenile offenders, such as high levels of psychopathology, anger, and academic problems. There are substantial differences suggested in types of psychopathology and characteristics such as victimization history, neurological deficits, and social skills, however. Of these differences, poor social skills have been repeatedly identified as one of the most common characteristics of JSOs. Moreover, social skills may be the most amenable to improvement following appropriate treatment. Consequently, social skills training may be a crucial area to include in prevention and intervention efforts.

Most research in the area of social skills deficits in JSOs has relied on self-report of friendships and clinical observations. Few identified studies have examined social skills using validated assessment tools. Likewise, there has been little exploration of the specific social deficits of JSOs. Clarification of the extent and nature of social skills and perspective-taking deficits will help in characterizing youth who may be at-risk for sexual offending and will also provide specific guidance on skills to emphasize in treatment.
Models of social information processing in children have been widely researched and offer significant contributions to the understanding of children’s social development and adjustment. The current, reformulated model of social information processing proposed by Crick and Dodge (1994) incorporates the influences of knowledge and emotion on the processing of external social cues. The reformulated model (presented in Figure 1) includes the following stages: (1) encoding of internal and external cues, (2) interpretation of these cues, (3) goal selection, (4) access or construction of possible responses, (5) response decision, and (6) behavioral enactment of the chosen response.
At the center of the reformulated social information-processing model is a database of memories, social schemas, behavioral scripts, and working models of relationships, all of which constitute an individual’s social knowledge. These mental structures are representations of how the world is expected to be and are formed based on past social experiences. Children rely on social knowledge to help them interpret the situational and internal cues that they experience in social interactions. These cognitive structures simplify and organize processing, making it more efficient and enabling individuals to function in a world that would otherwise be too complex. The social
knowledge database is built and maintained over time as new interactions are processed. With each interaction, the child forms a mental representation of the current social situation, behaviors of all involved, and the outcome of the interaction. This representation is stored in the database of memories to become part of the social knowledge that will affect future actions. This proposed centralized database interacts reciprocally with each stage of processing.

The first stage in the social information-processing model is that of encoding both internal and external cues. Encoding incorporates sensory input, selective attention, and storage of cue information. Meaning is applied in the second step of social information processing, that of mental representation, or interpretation of the cues. It is the individual’s interpretation of the stimulus, as opposed to an exact, objective image, that gets stored in memory. The specific meanings that a child attaches to a given stimulus are related to the individual’s emotional needs, goals, and experiences. During stage two interpretation, any of the following processes may occur: (1) situational cues are filtered according to current affect and past experiences, and this personalized mental representation is stored in long-term memory; (2) events that occurred in the current situation are analyzed for causality as well as to assess why the intended goal was or was not achieved; (3) perspectives of others in the situation are inferred; (4) accuracy of expectations and self-efficacy predictions made during previous exchanges with the peer are assessed (evaluation of past performance); and (5) inferences are made regarding the meaning of past and present social interactions for the self (self-evaluation) and the peer (evaluation of others). Each of these processes may be shaped by information stored in the memory database and may also contribute to subsequent changes to the database.
During stage three of the social information-processing model, children are thought to select a desired goal or outcome for the interaction. Children may be predisposed toward certain goals based on their past experiences and current affect, but may also construct new goals to fit the current situation. Step four involves response accessing and construction. Mental representations or interpretations of events are associated through conditioning with many types of possible responses including verbalizations, motor activities, endocrine secretions, autonomic arousal, and emotional experience. Response accessing is hypothesized to follow rules stored in the memory database as acquired associative networks; current situational cues, internal affect, and schema regarding interpersonal relationships trigger the access of potential responses that fit the current interaction parameters. Selected goals are also likely to influence the specific responses that are accessed.

Once responses are accessed, the process of response evaluation occurs, which enables decision-making. Response evaluation may or may not be a conscious process. Variables presumed to be involved in response evaluation and ultimate response choice include expected outcome, self-efficacy for enacting the response, and the estimated appropriateness of the response. The chosen response is then carried out during stage six enactment, and the cycle of social information processing continues.

Social Information Processing in Aggressive and Depressed Children

Both aggressive and depressed children demonstrate fairly specific cognitive deficits at each of the steps of social information processing as well as in the knowledge structures related to social information processing. The deficits of aggressive children have been more thoroughly explored, but findings related to depressed children support
the model’s generalizability for characterizing the social information processing of children with differing problems. Crick and Dodge (1994) hypothesize that over time, the deficits seen in aggressive and depressed children will become more automatic as acquired processing patterns and tendencies become ingrained. Indeed, these authors suggest that early experiences may form the bases for neural paths, particularly during the first several years of life when synaptic pathways are rapidly developing. Over many years, given the same input and response patterns, the paths may become both more efficient and more rigid. This theory explains how maladaptive processing and behavioral tendencies can become resistant to change even in the face of input from new experiences or from specific interventions. Characteristics thus become increasingly stable, accounting for consistency of behavior across time. The theoretical rigidity of these response patterns over time highlights the need for early assessment and intervention to most successfully alter maladaptive processing and behavior patterns.

Emotions are seen as an integral part of each step in the current social information-processing model. At the encoding step, emotional arousal may serve as an internal cue that must be encoded, or it may affect which information is noticed and encoded. At interpretation, emotions influence what meaning the child gives to the situation. At the goal clarification step, emotions may enhance or inhibit a child’s motivation to formulate or pursue particular goals. At the response access step, accessing particular behaviors may lead to changes in emotional state, and emotions may influence which responses are accessed. At response decision, predicted emotional reactions to one’s behavior may serve as outcome expectations to consider in choosing an appropriate and effective response. Both the specific social information-processing deficits seen in
aggressive and depressed children and the effects of emotion on these deficits will be discussed in the following section.

**Social Knowledge.**

Aggressive behavior is controlled to a great extent by scripts and beliefs related to social knowledge, and the constancy of such scripts and beliefs, once encoded, accounts to a great extent for the stability of aggression across time and situations (Huesmann & Guerra, 1997). Normative beliefs are defined as an individual’s personal cognitions about the acceptability or unacceptability of a behavior. They serve to regulate corresponding actions and may be situation specific or general. Normative beliefs about aggression increase in stability with age, and are proposed to influence responding in both novel and familiar situations. There is a significant relationship between the acceptance of aggression as an appropriate behavior and the enaction of aggressive and delinquent behavior.

Huesmann & Guerra (1997) found that normative beliefs about both retaliatory aggression and general aggression were correlated with aggressive behavior rated by peers and teachers, especially in boys. Young children showed less stability in their normative beliefs about aggression, thus initial normative beliefs were not good predictors of later normative beliefs or later aggression. Early aggressive behavior, however, significantly predicted the child’s later normative beliefs about aggression, and later normative beliefs predicted aggressive behavior. Indeed, children whose normative beliefs revealed greater approval of aggression showed increases in later aggressive behavior beyond what one would expect from their early aggression. Clearly, early elementary school years are critical for the development of normative beliefs about social
behavior, which are developed on the basis of one’s own behavior and how it is reinforced, through observation of others’ behavior, and through direct teaching from peers, parents, and others. Once beliefs are crystallized, they are resistant to change and begin to predict subsequent behaviors. Normative beliefs may affect the way in which a child perceives the behaviors of others and may cue the retrieval of aggressive scripts for social behavior, as well as legitimizing these scripts as acceptable to be carried out.

**Encoding.**

Dodge (1993) hypothesized that social knowledge structures provide the underlying predispositions that guide the selective encoding and processing of information. While normative children tend to rely on presented information to reach social judgments, aggressive children are more likely to call on information from their own past experiences. A crucial feature of appropriate encoding is unbiased attention to as many relevant cues as possible. Aggressive children, however, demonstrate incomplete encoding of information as well as a systematic bias toward selectively encoding hostile cues. Depressed children also demonstrate biased encoding, but their bias is toward processing and remembering negative self-referent cues (Dodge, 1993). Both groups of children show encoding biases that serve to reinforce their prior worldviews.

Dodge and Frame (1982) found that in a free-recall task following exposure to a social vignette, aggressive boys were much more likely to demonstrate intrusions, making up statements that did not actually occur. The rate of intrusion for aggressive older boys (aged 9-10) was equivalent to that of nonaggressive younger boys (aged 5-6), leading to the conclusion that the high intrusion rate can be seen as a developmental deficit of several years. Aggressive children were also more likely to make up statements
with a hostile valence than were nonaggressive children. Recognition accuracy for vignette statements improved with age, but aggressive children made more false positive errors in recognition than did nonaggressive children.

Both aggressive and nonaggressive children showed a recall bias that varied with their beliefs about the potential motive of the provocateur. When characters presented in vignettes were labeled as to their peer status, children in this study were biased toward the recall of cues consistent with this label. When an actor was labeled as a popular child, both aggressive and nonaggressive children recalled more benevolent cues than when the actor was labeled as aggressive or not labeled at all. Likewise, when an actor was labeled as aggressive, children recalled more hostile cues than when an actor was labeled as popular or not labeled (Dodge & Frame, 1982).

Memory of external cues is not the only factor in encoding; the encoding stage also encompasses the recognition of internal emotional and social knowledge cues. Children’s expectations in an interaction can be cued by current events, memories, or by emotion cues, and events may likewise cue emotions (Lemerise & Arsenio, 2000). Aggressive children have difficulty reading both their own and others’ affective signals, however, which likely affects their encoding of appropriate cues. Additionally, moods, emotions, and arousal can influence what is noticed about a social encounter and make the recollection of mood-congruent information more likely. This may provide some explanation for the biased encoding seen in aggressive children as well as the encoding biases identified in all children in response to social labels; emotions and social knowledge regarding past social interactions can bias children toward the encoding of hostile cues. Additionally, this may explain the bias found in depressed children; their
depressed mood makes negative self-referent information more salient, thus it is more frequently encoded and remembered.

Crick and Dodge (1994) proposed the following potential causes for socially maladjusted children’s encoding biases: (1) these children may have memory deficits that do not allow them to store or recall presented information adequately; (2) they may selectively attend to particular types of social cues; or (3) they may have well-developed schemata for social interaction that interferes with their ability to process and use immediate social cues (i.e., their working models for social interaction preempt further processing of immediate cues because they think that they already have the situation figured out).

**Interpretation.**

After encoding takes place, children must interpret the information they have gathered and come to a conclusion as to its meaning. Children tend to form interpretations based on the types of cues that they recall (Dodge & Newman, 1981). Selective recall of hostile cues has been found to be a significant predictor of the expectancy that a peer will behave in hostile ways (Dodge & Frame, 1982). Thus, it is not surprising that aggressive children are consistently shown to display a bias towards interpreting ambiguous situations as hostile. This tendency has been termed the hostile attributional bias, and may be influenced by previous encoding errors as well as emotional state and social knowledge. The relationship between hostile attributional biases and children’s social maladjustment is quite robust (e.g., Dodge, 1980).

Crick and Dodge (1994) reported that aggressive children are more likely than their peers to base their interpretations on schemata stored in memory as opposed to
actual social stimuli presented. In addition, aggressive children are more likely to base interpretations on social cues that occur at the end of a social interaction (recency effect).

Aggressive children make more hostile attributions when they respond impulsively. Impulsive responding appears common among aggressive children, likely due to the fact that they stop searching for social cues because they believe they already know the intent of the provocateur. Aggressive boys use fewer social cues of any type when making interpretations of social situations, but instead accept the first cause that becomes salient. This results in the cessation of their search for information (Dodge & Crick, 1990). Aggressive boys may be predisposed to attribute hostility to peers due to their social knowledge, or pre-existing expectancies. They therefore make attributions of a situation quickly without examining available contradictory information. In a study by Dodge and Newman (1981), children were asked to listen to evidence and determine intent in various vignettes. To increase their motivation for success, they were told that they would be rewarded for correct determinations. Aggressive boys chose to hear 30% fewer testimonies before making a decision than did the nonaggressive group. Furthermore, when the aggressive children were subdivided into those with quick response times and those with slow response times, only those who responded quickly demonstrated a hostile attributional bias. This indicates that training aggressive children to respond more slowly (presumably increasing encoding of cues) could lead to fewer biased attributions.

Dodge and Frame (1982) found that the hostile attributional bias is specific to situations that involve the aggressive child directly and result in a negative outcome. Aggressive children observing actions directed at other peers do not demonstrate a hostile
bias. In truth, aggressive children are the victims of more aggression than are their average and nonaggressive peers, even after controlling for the amount of aggression they initiate. Thus, the biased attributions seen in aggressive children may have some basis in their experience; their expectancy that peers will be biased in aggressing toward them is consistent with their experience, and each aggressive interaction serves to strengthen this belief.

Peers also carry in their memories information about the past behavior of aggressive children, which leads them to expect aggression from previously aggressive peers. They are thus more likely to attribute hostility to children whom they see as aggressive (Dodge & Frame, 1982). Indeed, Dodge (1980) found that children attributed hostile intent to characters labeled as aggressive five times more often than to characters labeled as nonaggressive.

As opposed to aggressive children, depressed children are more likely to attribute events with negative outcomes to stable, internal causes (Dodge, 1993). Both aggressive and depressed children tend to attribute hostile intent to peers involved in an event with a negative outcome, but depressed children blame themselves for negative events and aggressive behavior from peers while aggressive children blame their peers (Quiggle, Garber, Panak, & Dodge, 1992). Thus it can be concluded that both aggressive and depressed children demonstrate a hostile attributional bias, but their further interpretation of the causes of hostility may lead their subsequent social information processing in different directions. Both groups show deviant patterns in the interpretation of interpersonal events, but the patterns differ based on pre-existing expectancies for social interactions.
Goals.

Goals for social situations may include internal and external states and outcomes. Children bring goal orientations or tendencies to the peer situation, but also revise those goals and construct new goals in response to immediate social stimuli. Goal orientation may result from feelings, temperament, adult instruction (e.g., coaching, modeling), cultural norms, and the media (Crick & Dodge, 1994). Emotions can trigger particular goals, and peers’ affective cues can also influence children’s goals. For instance, children who are overwhelmed by their own and/or others’ emotions may choose avoidant or hostile goals to reduce their own arousal.

Lochman, Wayland, and White (1993) found that children identified by their teachers as aggressive placed a higher value on the goals of dominance and revenge and a lower value on the goal of affiliation than did those identified as nonaggressive. The choice of social goals was also related to sociometric status; in peer conflict vignettes, socially rejected boys focused more on instrumental outcomes and less on relational outcomes than did average or popular boys.

Social goals are an important factor in determining interpersonal behavior, as they influence problem-solving strategies that are accessed and chosen (Lochman et al., 1993). Behaviors may result from the child’s expectation that the given behaviors will lead to a valued goal. Aggressive interpersonal behavior is related to social goals that value control and hostility as opposed to peer interactions and peer feelings.

Response access.

In the response access stage, children generate possible behavioral responses that they believe will meet the parameters of the current situation as well as their identified
goals. Dodge and Frame (1982) found that boys’ attributions about a peer’s intent in a situation directly mediated the behavioral responses that they generated. When they believed that the peer’s behavior in a provocation situation was accidental, the responses that they generated were nonaggressive and sometimes benevolent. When they believed the peer’s behavior to be hostile, however, their generated responses were generally aggressive. Consistent with this finding, Dodge and Coie (1987) also reported that children generate aggressive behavioral responses only when they interpret the provocation as hostile. Indeed, they found that the actual intention of the provocateur contributed nothing to the prediction of behavioral response once the subject’s interpretation was taken into account. Thus, the hostile attributional bias seen in aggressive children is highly correlated with an increased likelihood to access aggressive responses. Similarly, Dodge (1980) found that even nonaggressive boys were more likely to propose aggressive retaliation to a situation if the other peer involved was viewed as aggressive. Boys predicted that aggressive peers would be more likely to continue being aggressive and they were less willing to trust them. Clearly, beliefs about a peer’s intent affect response access for both aggressive and nonaggressive children.

In addition to their bias toward accessing aggressive responses, aggressive children appear to access fewer potential responses and are relatively inflexible in accessing new responses (Dodge, 1993). If their initial response to a situation is unsuccessful, they are unable to access alternate types of responses. Indeed, habitually aggressive individuals have more extensive behavioral scripts for aggressive problem solving than do nonaggressive individuals, but they may lack other types of problem-solving scripts (Zelli, Dodge, Lochman, & Laird, 1999). This accessing deficit narrows
the range of behaviors available to aggressive children, thus maintaining their negative peer interactions.

Depressed children, in contrast, have been shown to access a larger number of responses to problems, but their identified responses are generally irrelevant to the given situation (Dodge, 1993). Thus, while aggressive children may rely on a small number of maladaptive responses in social interactions, depressed children appear to have a large number of responses that are equally ineffective in solving social problems. Neither group of children is able to analyze the social interaction to arrive at potential responses that will effectively resolve the situation. They lack stored scripts of effective prosocial behaviors. Children with comorbid aggression and depression appear even more immobilized in social situations, as they are more likely to generate purely affective responses as opposed to direct actions (Quiggle et al., 1992).

Response evaluation.

In evaluating possible responses, children consider the content of each generated response, type of expected outcomes, and degree of confidence they have in their ability to perform each response (Crick and Dodge, 1994). Failure to evaluate responses can occur because of developmental immaturity or emotional dysregulation. Heightened arousal or matters of emotional importance can lead to a temporary failure to consider long-term outcomes adequately in favor of dependence on immediate gratification. On the other hand, children may evaluate outcomes fully, but in deviant ways due to inappropriate values, inaccurate beliefs, or poor decision-making (Lemerise & Arsenio, 2000).
Poor response generation and evaluation skills have been noted in aggressive boys (Dodge & Crick, 1990). Evaluation deficits in aggressive children include complete failure to engage in response evaluation, overly positive evaluation of the outcomes of deviant behavior, and low confidence in the successful enactment of nondeviant behaviors (Dodge, 1993).

A failure to appropriately evaluate responses is supported by the finding that aggressive adolescents generate fewer possible outcomes for their behavior (Dodge, 1993). This suggests that this group does not sufficiently consider response outcomes before they act. There is considerable evidence that aggressive children hold different expectations for the outcome of aggressive behavior than do nonaggressive children. Perry, Perry, and Rasmussen (1986) found that aggressive children were more confident that their aggression would produce a tangible reward and would be successful in reducing future problems with other children. They did not differ significantly from nonaggressive youth in their expectations for adult or peer approval, however. Likewise, Dodge (1993) determined that aggressive youth expect more positive instrumental outcomes, fewer negative personal outcomes, and fewer negative sanctional outcomes. As demonstrated in depressed youth, those who possess a strong hostile attributional bias but who fear that aggressive retaliation will be unsuccessful or severely punished are not unusually aggressive (Perry et al., 1986). Thus, interpretations of events interact with expected outcomes of behavior in producing observed responses.

The object of intended aggression also affects response evaluation, both in aggressive and nonaggressive children. Children expect more peer approval for retaliating against an aggressive peer than for aggressing against a nonaggressive peer
(Perry et al., 1986). However, nonaggressive children also demonstrate less optimism that aggression will be successful in reducing aversive treatment when they are dealing with an aggressive peer.

Self-efficacy for the performance of a response is also an important consideration in response evaluation. Aggressive children have been shown to be more confident in their ability to aggress than are nonaggressive children (Perry et al., 1986). Dodge (1993) pointed out the aggressive children expect that engaging in aggressive behaviors will be easy for them, while inhibiting aggressive responses will be particularly challenging for them.

Depressed children evaluate potential responses quite differently from their aggressive peers. They tend to judge the quality of withdrawal responses more favorably, though they expect more negative instrumental and fewer positive instrumental outcomes. They report low efficacy for engaging in assertive responses, and therefore expect assertive responses to result in fewer positive outcomes and more negative outcomes. In general, depressed children expect to perform more poorly and receive fewer rewards in social interactions (Quiggle et al., 1992).

**Summary of Social Information Processing Stages.**

Overall, the stages of social information processing interact with one another to result in observed behavioral outcomes. Each step of processing provides information that significantly improves the prediction of behavioral performance (Dodge & Price, 1994). The use of several processing variables as predictors in multiple regression leads to greater behavioral prediction than do analyses of single predictors, and the combination of variables from all social information-processing stages can account for
more than 50% of the variance in behavioral and social adjustment outcomes (Crick & Dodge, 1994). Furthermore, longitudinal studies show that patterns of deviant processing may be causally related to aggressive responding across development (Zelli et al., 1999). These findings indicate that the social information-processing model can be a valuable tool in clarifying specific social deficits and predicting future behaviors. Although the model has thus far been applied primarily to aggressive children, studies support its use with adolescents and with social problems other than aggression (i.e., depression). Indeed, children with problems of both aggression and depression have been found to show the social information-processing patterns of both groups in an additive manner (Quiggle et al., 1992).

**Physical Punishment and Social Information Processing**

Children who have experienced harsh physical punishment have shown increased interpersonal aggression as well as social information-processing deficits. It is valuable to conceptualize harsh discipline and physically abusive behavior as occurring along a continuum so that the true range of frequency and severity can be captured. With this continuous rating of physical punishment, Weiss, Dodge, Bates, and Pettit (1992) found that severity of discipline and age of onset were correlated with child aggression rated by parents, teachers, and independent observers. The relationship between physical punishment and childhood aggression remained significant even after controlling for socioeconomic status and child temperament. The effects of harsh discipline on later aggression appeared to be mediated at least in part by social information processing.

Higher levels of harsh physical punishment were associated with greater information-processing biases. Specifically, increased physical punishment was
associated with lower attention to and encoding of relevant social cues, increased hostile attributional bias, and an increased tendency to generate aggressive responses to interpersonal vignettes. These social information-processing variables predicted later changes in aggression even after controlling for levels of harsh discipline and previous aggressive behavior, which supports the mediating role of processing style in the development of child aggression; children develop more deviant social information-processing patterns in response to early harsh discipline, and subsequently become more aggressive toward peers (Weiss et al., 1992). The acquisition of deviant processing patterns appears to be a crucial component in mediating the long-lasting effects of early child abuse on later aggressive responding (Zelli et al., 1999).

Similarly, in a prospective study of kindergarten students, Dodge, Price, Bachorowski, and Newman (1990) found that children who, according to maternal interview, had been physically harmed in early life became more aggressive toward peers over the first six months of kindergarten. Indeed, teacher-rated aggression scores for children with a history of physical harm were an average of 93% higher than scores for non-harmed children. Thirty-six percent of the physically harmed children received teacher-rated aggression scores in the deviant range, as compared to only 13% of the non-harmed children. Additionally, aggression rates determined by observers were 30% higher for these children. When the family variables of socioeconomic status, parents’ marital status, and marital violence were examined, each variable predicted physical harm to the child in early life. However, an examination of child biological variables, including prenatal maternal health problems, child health problems at birth, and child temperament during the first year of life, indicated that none of these variables was
significantly predictive of physical harm to the child. Further, physical harm was found to predict later child aggressive behavior even after controlling for family and child variables. Therefore, though environmental and biological factors such as poverty, marital conflict, and irritable temperament may contribute to later child aggression, the experience of physical abuse appears to raise the risk for development of aggressive behavior beyond the risk presented by these other variables.

In relation to specific social information processing changes, harmed children were found to become significantly less attentive to relevant social cues, more biased toward hostile attributions, and less likely to generate prosocial solutions to interpersonal situations. Analyses indicated that when these child-processing variables were covaried, early physical harm was no longer a significant predictor of later child aggression; social information processing appeared to serve as a mediator between early physical harm and later violence. These authors concluded from their findings that early physical harm leads to the development of later aggressive behavior largely by changing the child’s patterns of processing social information (Dodge et al., 1990).

Theories on the effects of child abuse provide potential explanations for the relationship between physical violence and social information processing. Attachment theory posits that insecure attachments related to abuse may result in the development of internal working models of the world as a threatening and dangerous place. Because of this working model, abused children may fail to attend to appropriate social cues and instead become hypervigilant toward hostile cues. Social learning theory suggests that the experience of physical abuse may make aggressive responses more salient and accessible from the array of potential responses. Physically abusive behavior also provides a model
of aggression as a successful social behavior, leading abused children to have a higher likelihood of evaluating aggressive responses as effective in producing positive outcomes (Dodge et al., 1990).

Effects of Social Information-Processing Interventions on Changes in Aggression

If social information-processing variables serve as the organizing factors underlying aggression, changes in social information processing should lead to relatively stable behavior changes. Guerra and Slaby (1990) conducted a study with incarcerated violent juvenile offenders (mean age = 17) that attempted to remediate social problem-solving skill deficits and modify beliefs supportive of aggressive behavior. Skills addressed in the intervention included attention to relevant and nonhostile cues in problem interpretation and goal selection, generation of a variety of potential responses and their consequences, and the prioritizing of potential responses according to their effectiveness in providing goal-directed and non-violent outcomes. Comparison groups included one that received an equivalent amount of professional attention in the form of job skill training and one that received no treatment.

Juveniles who participated in the treatment group showed improved social problem-solving skills related to problem definition, goal selection, number of facts encoded, number of responses accessed, and number of consequences considered. Additionally, the effectiveness of their second-best response was significantly higher than that of either control group, indicating improvement in the breadth of accessed responses. The treatment group also showed a reduction in the beliefs that aggression is a legitimate response and is necessary to maintain a positive image.
This study also examined ratings of aggressive, impulsive, and inflexible behaviors identified by direct care staff. The juveniles who received the group intervention showed significant improvements in all three types of behavior as rated by staff, while juveniles in the two control groups demonstrated no behavioral changes. Juveniles in the treatment group were somewhat less likely to recidivate over the next two years, though this difference did not reach significance. Significant predictors of recidivism included the social information-processing variables of problem definition, goal selection, effectiveness of the second-best response, and belief that aggression is a legitimate response. These findings suggest that aggressive behaviors can be reduced by directly addressing social-cognitive factors important to social information processing. However, the magnitude of change in this study was small and was not found to endure over time. This study focused on violent, incarcerated offenders and utilized a treatment program that was only 12 weeks long. Larger and more lasting changes may be possible with the use of a more intensive program with post-release transitional work.

Social Information Processing of Adolescent Offenders

Although most of the research on the social information-processing model has involved young children, there are some specific deficits that have been demonstrated in adolescents, and particularly those who have been adjudicated delinquent. Social information-processing deficits appear to increase along with the level of maladaptive behavior. Slaby and Guerra (1988) assessed violent offenders, aggressive high-school students, and average students concerning their general social beliefs about aggression as well as their social information processing. When violent juvenile offenders were compared to aggressive high-school students, they demonstrated more processing deficits
on each of the skills measured except for goal selection. Specifically, juvenile offenders remembered fewer facts from a social vignette, produced fewer potential solutions, and identified fewer consequences for their solutions than did aggressive high-school students, who in turn demonstrated worse skills in these areas than did average high-school students. In a linear fashion, the more aggressive that a youth was considered to be, the more likely he was to believe that aggression is a legitimate response and that aggression is helpful in avoiding a negative image. Delinquent adolescents were more likely to report that the use of aggression increases self-esteem. Additionally, these youth were more likely to believe that victims of aggression do not suffer. These cognitive factors represent the typical belief systems that underlie aggression.

Hostile attributional biases are also found in adolescent males (e.g., Dodge & Coie, 1987, Slaby & Guerra, 1988). The degree to which an adolescent displays hostile attributional biases has shown a positive relationship with interpersonally violent crime, even after intelligence, social-economic status, and race are controlled for (Dodge et al., 1990).

One area of social information processing that has been particularly explored in delinquent adolescents is that of goal selection. Aggressive adolescents are more likely to choose a hostile goal (Slaby & Guerra, 1988), and those who reported interpersonal crimes were more likely to rate dominance and revenge as top social goals and affiliation as the lowest-priority social goal (Lochman et al., 1993). This pattern was also seen in adolescents whose teachers rated them as high in both depression and aggression and whose peers rated them as inattentive and aggressive. Aggressive adolescents show a less clear ordering of social goals than do nonaggressive boys, however. Nonaggressive boys
consistently rate social goals in the following order: affiliation, avoidance, dominance, revenge. While aggressive boys do place relatively higher value on dominance and revenge, they also place value on peer affiliation. The goal structure of aggressive adolescents appears fairly undifferentiated, which may lead to goal conflict. While nonaggressive boys have clear social goals, aggressive boys may have to choose between relatively evenly valued goals, which may make behavioral choices and the negotiation of social situations more challenging and conflictual (Lochman et al., 1993).

By adolescence, boys appear more capable of identifying responses that will effectively achieve desired goals. Indeed, aggressive and nonaggressive adolescents have been found to agree about what behaviors are necessary to attain different social goals. Aggressive boys do demonstrate higher rates of aggressive solutions to presented vignettes, however. It therefore appears that the selection of the primary social goal may be the factor that determines response access (Lochman et al., 1993). In the evaluation of potential responses, delinquent adolescents appear to consider fewer social consequences of their actions, which likely increases the chance that they will behave aggressively.

Relation of Social Information Processing to Victimization Histories in Incarcerated Youth

Shahinfar, Kupersmidt, and Matza (2001) examined a sample of 110 incarcerated adolescents to explore the effects of their victimization histories on their social information processing. The delinquents in their sample reported high rates of exposure to violence both as witnesses and as victims. Exposure to mild forms of violence (e.g., physical threat, being approached to use or sell drugs, being punched or slapped) did not appear to correlate with social information processing, but exposure to severe violence
(e.g., shooting, stabling, assault with a weapon, witnessing a murder) was related to deficits in social cognitive functioning. Specifically, those who reported victimization by severe violence were more likely to approve of aggression, demonstrate hostile attributional biases, and endorse hostile social goals. In contrast, those who had witnessed severe violence were more likely to perceive positive outcomes for the use of aggression. Exposure to sexual violence was not examined.

The above findings are consistent with research on subgroups of aggressive youth demonstrating primarily reactive versus proactive aggression. Reactive aggression is characterized by “hot-blooded” anger that occurs as a frustration response or in response to provocation. Reactive aggression involves immediate retaliation or defensive action against a perceived threat, and is related to strong autonomic activation. In contrast, proactive aggression is highly organized, “cold-blooded” anger that is accompanied by little autonomic activation. Instead, proactive aggression is planned and driven by the expectation of reward or material gain. In general, reactively aggressive youth have been shown to demonstrate social information-processing deficits similar to those seen in victims of violence, while proactively aggressive youth show patterns of social information processing similar to those of witnesses to severe violence (Dodge & Coie, 1987; Dodge, Lochman, Harnish, Bates, & Pettit, 1997).

In the first study of social information processing among juvenile sex offenders, Demby (2001) attempted to differentiate between reactive and proactive aggression styles in JSOs and to relate these styles to social-cognitive functioning. In a maximum-security training school, 63% of violent juvenile offenders could be classified as purely reactive or purely proactive. In the subset of juvenile sex offenders, 24% were classified as
reactively aggressive, 39% proactively aggressive, and 36% mixed. Contrary to
expectation, however, no clear differences in social information processing could be
identified among the subgroups. Low sample size was likely a factor due to lack of
power. The use of incarcerated JSOs results in a restriction of range for levels of
aggression, thus effect sizes among this population would likely be reduced. Importantly,
however, even in this extreme population, Shahinfar and colleagues (2001) were able to
differentiate among social deficits for adolescents with different types and levels of
violence exposure. This suggests that social information processing differences do exist,
even among a selected sample of highly aggressive youth.

Rationale and Hypotheses

Although social skills deficits have repeatedly been described in adolescents who
commit sexual offenses, this literature is largely clinical and does not incorporate
standardized measures of social skills. Thus, the literature does not currently provide
strong empirical support for the presence of social skills deficits in this offender
population. Additionally, there has been no research to date comparing JSOs with other
adolescents on measures of social problem-solving skills or social information
processing. There is clear research to indicate that violent juvenile offenders show
deficits in social information processing as compared to normative adolescents, but the
differences between these juveniles and JSOs remain unexplored. Clarification of specific
social skills deficits in JSOs as a group and as compared to other juvenile offenders will
provide crucial information on potentially successful treatment strategies to use with this
challenging and understudied population.
The current study proposed to examine the distinctions between social information processing in JSOs and other juvenile offenders using measures of specific social information-processing components. The results of this study will provide empirical evidence related to the social skills of JSOs, and will clarify specific social deficits if any exist. This study will also allow the comparison of JSOs to other violent offenders in terms of social processing. Because social information processing and treatment effectiveness has been examined for general delinquent youth, similarities between these two groups will suggest potentially effective treatment strategies. Likewise, specific differences between the two groups will provide some bases for identifying youth at risk to become sexual offenders and will also indicate areas where treatment programs should differ with regard to social information-processing interventions.

Because of the virtual absence of research in this area, the analysis of social information processing in juvenile sex offenders as compared to other violent offenders was largely exploratory. There were a few hypotheses generated, however, based on JSO characteristics and previous findings in similar populations. This study addressed the following hypotheses:

1. Previous research has demonstrated that aggressive children report stronger beliefs in the acceptability of aggressive behavior than do other youth (e.g., Huesmann & Guerra, 1997). JSOs have also demonstrated multiple cognitive distortions related to sexual assault and interpersonal aggression (e.g., Demby, 2001; Lakey, 1992; White & Koss, 1993). Therefore, it was hypothesized that
JSOs would show specific cognitive distortions indicating their belief in the acceptability of aggressive behavior.

2. Because the cognitive distortions demonstrated by JSOs generally include the endorsement of rape-supportive myths as well as the tendency to minimize the harm that sexual assault can cause (e.g., Lakey, 1992), it was hypothesized that JSOs would show stronger beliefs in the acceptability of sexually aggressive behavior relative to nonsexual offenders.

3. The degree to which an adolescent displays hostile attributional biases in response to ambiguous vignettes has shown a positive relationship with interpersonally violent crime (Dodge et al., 1990). It was therefore hypothesized that JSOs would demonstrate a hostile attributional bias in interpreting the intent of characters in vignettes, as operationalized by making hostile attributions on a majority of vignettes (at least 3 of 4).

4. Because adolescents who have committed interpersonal crimes have been found to rate hostile goals more highly than nonhostile goals (Slaby & Guerra, 1988), it was hypothesized that juveniles who have committed sexual offenses would likewise report a preference for hostile goals over nonhostile goals. Given findings that JSOs are more socially anxious and isolated than other delinquents (e.g., Katz, 1990) and that nonsexual offenders are more aggressive toward peers than are sexual offenders (Bagley & Shewchuk-Dann, 1991), it was further hypothesized that JSOs would place less value on hostile goals than did nonsexual violent offenders.
5. Crick and Dodge (1994) noted that youth who are overwhelmed by their own and/or others’ emotions are more likely to choose avoidant goals to reduce their arousal. Because JSOs are more likely to be depressed and anxious (e.g., Ford & Linney, 1995), it was hypothesized that they would place more value on the goal of avoidance than did nonsexual offenders.

6. Aggressive children have demonstrated higher confidence in their abilities to aggress and lower confidence in their abilities to inhibit aggression than have nonaggressive children (Dodge, 1993; Perry et al., 1986). In contrast, depressed children report low self-efficacy for engaging in any type of social interaction (Quiggle et al., 1992). Because they are more likely to be depressed and socially isolated, it was hypothesized that JSOs would report lower self-efficacy than did nonsexual offenders for both antisocial and prosocial behaviors.

7. Slaby and Guerra (1988) found that the more aggressive that a youth was considered to be, the more likely he was to believe that aggression is a legitimate and acceptable response. It was hypothesized that JSOs would show deficits similar to those of nonsexual offenders in evaluating the expected outcomes of behaviors. Specifically, it was expected that JSOs would evidence beliefs that physical and verbal aggression are effective in achieving social goals.
Methods

Procedures

Data for this study were drawn from an existing dataset collected from 1997 to 1998 as part of a comprehensive clinical assessment on boys in a North Carolina Youth Development Center. This assessment was conducted with all adolescents entering one of the North Carolina Youth Development Centers during a one-year period of time. Paper and pencil questionnaires were administered to adolescents in small groups, and all data were given to the adolescents’ individual psychologists. Juveniles were verbally informed prior to completing the questionnaires that their answers would be used for clinical purposes as well as for research purposes, but that they would remain anonymous in all research. Staff at the Youth Development Center entered the data into a computer database after removing all identifying information. Random identification numbers were assigned that are not connected to identifying information in any way. A subset of the information in this archival database was utilized in the current study.

Participants

Demographics

Data were gathered from 109 male juveniles who were adjudicated delinquent and incarcerated in a secure Youth Development Center in North Carolina between 1997 and 1998. The boys ranged in age from 13 to 17 years old, with a mean age of 15.7 (sd = 1.1). On average, they were placed in the 8th grade in school and were of low-average intelligence (mean WISC IQ score = 81). The majority were African-American (63%), with 24% Caucasian, 7% multiracial, 2% Hispanic, 2% American Indian, 1% Asian, and 1% other racial group.
Sex

Most studies of juvenile sexual offenders focus on adolescent males, though adolescent females do commit sex crimes. A review of several studies determined that females commit between 2 and 11% of juvenile sex offenses, though female offenders are more likely to be under 12 and are almost always victims of sexual abuse themselves (Righthand & Welch, 2001). Adolescent females represent between 2 and 3 percent of juveniles in sex offender treatment programs. There are currently relatively few females involved in sexual offenses in adolescence, and even fewer available for research in treatment programs. Indeed, there were no females incarcerated for sexual offenses in this North Carolina Youth Development Center. Due to the low frequency of identified adolescent female sexual offenders, research exploring the characteristics of female sexual offenders would likely require a multi-state study. Therefore, this study focused exclusively on adolescent male sexual offenders.

Offense Histories

Of the 109 juveniles who participated, 46 had histories of committing sexual assaults (i.e., rape, attempted rape, sexual assault, sexual offense) identified either through criminal histories or self-report. Twenty-six (58%) of the 45 juveniles with full adjudication records had also committed nonsexual crimes such as larceny and physical assault. Of those with data on victim age (n=29), 69% of the juveniles had perpetrated sexual offenses against children at least five years younger than themselves, while 31% committed sexual offenses against peers or adults. These juveniles served as the experimental group for these analyses.
The remaining 63 juveniles served as the comparison group. These juveniles had histories of other violent offenses, but no reported sexual violations. Reported violent nonsexual offenses included assault, burglary, larceny, possession of a deadly weapon, armed robbery, and murder.

**Measures**

Measures to be used in this study, with the exception of the Self-Efficacy Questionnaire, have been used in previous research with adjudicated adolescents and found to differentiate between social information-processing patterns of youth based on exposure to physical violence (Shahinfar et al., 2001). All of the measures are based on standardized instruments, but have been modified or shortened for use with a violent adolescent population. Psychometric properties of the revised measures were calculated for the current study.

**Endorsement of Aggressive Beliefs**

Endorsement of aggressive beliefs was measured using a 12-item adaptation of the Normative Beliefs About Aggression Scale (NOBAGS; Huesmann & Guerra, 1997). This measure was developed to examine general beliefs about aggression as well as endorsement of aggressive responses to hypothetical situations. Participants were asked to rate the acceptability of five different aggressive responses to vignettes on a scale of 1 (really disagree) to 5 (really agree). The Flesch-Kincaid grade level for readability calculated on the adapted measure was 4.9.

Approval of aggression calculated using the original NOBAGS measure has strong internal consistency ($\alpha = .89$). Additionally, approval of aggression has been shown to be significantly correlated with teacher ratings of aggression and peer
nominations for aggression, indicating adequate construct validity (Huesmann & Guerra, 1997). The original measure described two relatively low-level aggressive responses (saying something mean to someone and hitting someone). The measure was adapted for use with a violent adolescent population by including more severe forms of aggression as well as sexual aggression (see Appendix A). Subscales were created for each of the five different aggressive responses (saying something mean, robbing, hitting or beating up, forcing sexual activity, and shooting) by averaging responses across the 12 items. Higher scores indicate a stronger belief in the acceptability of aggression.

Causal Attributions

Causal attributions were examined using a measure based on the methodology of Dodge, Pettit, McClaskey, and Brown (1986) in studying hostile attributional bias. Four vignettes of peer situations with negative outcomes and ambiguous intent were presented. Participants were asked to rate two questions on a 5-point scale (1=yes, definitely to 5=no, definitely not): (1) was the action done to be mean and (2) was the action accidental (see Appendix B). For each item, hostile bias was calculated as the difference between the ratings on these two questions, with higher scores indicating more hostile bias. Hostile bias ratings were summed across items to create a single score. The calculated Flesch-Kincaid readability statistic for this measure was 4.2.

There are no standardized provocation vignettes that are used to assess causal attributions, but stories generally involve such common childhood provocation scenarios as cutting in line, damage to personal property, and physical provocation (e.g., being bumped into). The vignettes in the current measure address these areas and use story lines similar to those in previous studies. Cronbach’s alphas for such measures of intent
attribution generally indicate strong internal consistency (e.g., Dodge & Frame, 1982; Crick & Dodge, 1996). Similar measures have also revealed significant differences among groups of aggressive and nonaggressive boys, with aggressive boys demonstrating a stronger tendency to attribute behaviors to intentional hostility (Dodge & Frame, 1982; Quiggle et al., 1992).

Social Goals

Measurement of social goals utilized the same hypothetical peer conflict vignettes as described above. Using the social goal methodology of Lochman, Wayland, and White (1993), participants were asked to rate the importance of four social goals (avoidance, revenge, dominance, and affiliation) on a 5-point scale for each vignette (see Appendix B). Ratings were summed across items for each social goal to create a total of four subscales. Higher scores indicate a stronger endorsement of given goal.

Again, research assessing social goals has not used standardized vignettes, but those utilized in the current study depict peer situations similar to those created for previous studies. The goal types assessed in this study are identical to those examined by Lochman and colleagues (1993). In previous research, aggressive boys have differed significantly from nonaggressive boys on scales of this type in that they placed a higher value on dominance and revenge goals and a lower value on the affiliation goal (e.g., Lochman et al., 1993).

Perceived Consequences Questionnaire

Perceived outcomes of aggression were measured using a subset of the items from the Perceived Consequences Questionnaire (Perry, Perry, & Rasmussen, 1986). Five scenarios representing verbal and physical aggression were presented, and participants
rated on a 4-point scale how sure they were that the proposed action would result in a positive consequence (see Appendix C). This measure has shown good internal consistency (\( \alpha = .85 \)) in measuring the perceived outcome of aggression. For the current study, scores were averaged across items, with higher scores indicating a stronger belief that the outcome of the aggressive act will be negative. In previous research (Perry et al., 1986), aggressive and nonaggressive children, categorized by peer nominations of aggression, obtained significantly different scores on this measure. Aggressive children were more likely to expect positive outcomes from aggressive behavior than were nonaggressive children, which supports this measure’s validity. The Flesch-Kincaid grade level for readability calculated on this measure was 2.8.

**Self-Efficacy Questionnaire**

Self-efficacy for social behavior was measured using an adaptation of the Self-Efficacy Questionnaire (Perry, Perry, & Rasmussen, 1986). The original measure consists of subscales based on the types of behaviors addressed, including aggression, inhibiting aggression, prosocial behavior, and verbal persuasion. Cronbach’s alphas for these subscales range from .67 to .86, indicating adequate internal consistency (Perry et al., 1986). Peer-nominated aggressive and nonaggressive children evidenced significant discrepancy in their self-efficacy on this measure; aggressive children reported more confidence in their ability to act aggressively and less confidence in their ability to inhibit aggression, indicating that this measure is valid in discriminating between these two groups of children.

The adapted version has been shortened, and items have been added to the original measure to examine efficacy for additional social behaviors more applicable to
adolescents. The revised measure consists of 40 one- to two-sentence vignettes and has a Flesch-Kincaid readability grade level of 0.5. Adolescents were asked to rate on a 4-point scale how easy the action described in each story would be for them to do (see Appendix D). Subscales for this measure, as described by Perry et al., included aggression, refraining from aggression, prosocial behavior, and verbal persuasion. Higher scores indicate stronger self-efficacy for the given behavior.

**Background Information**

Background information gathered on each participant included age at the time of testing, race, grade in school, and IQ score as measured by the Wechsler Intelligence Scale for Children. Additional information was collected regarding each adolescent’s history of sexual victimization, exposure to violence, frequency of nonsexual violent behavior, and number of close male friendships.

Sexual victimization history was measured both through records and through self-report. Participants were asked both in interviews and in a written questionnaire whether or not they had ever been touched or kissed in a way that made them feel uncomfortable. They were also asked if anyone had ever made them do something with their private parts that they did not want to.

Exposure to severe violence was operationalized as the self-report of having been a victim of or witness to a shooting, stabbing, mugging, murder, or assault with a weapon and/or a victim of sexual assault. Participants were asked how often they had been exposed to one of the above types of violence, and frequencies were summed to create one continuous variable.
Nonsexual violent behavior was operationalized to include the following: (1) purposefully setting fire to a building, car, or other property; (2) hitting or threatening to hit someone; (3) using force to get money or other things from someone; (4) carrying a hidden weapon other than a plain pocket knife; (5) being involved in gang fights; (6) using force or threat of force to commit a robbery; and (7) attacking someone with the idea of seriously hurting or killing him or her. Again, participants were asked to rate the frequency of their participation in each of these actions, and results were summed.

Finally, participants were asked about their close male friendships. These were described as closest or best male friends who could be “boys who go to your school or who don’t go to your school.” Participants were asked to specify the number of close male friends that they have.

Results

Group Differences

The two groups (sex offenders versus nonsexual offenders) did not differ on age, race, grade, or IQ score (see Tables 1 and 2 for group means and percentages). A chi square test did indicate that sexual offenders were significantly more likely to have been victims of sexual abuse themselves, $X^2(1, 61) = 10.12, p<.01$. Of the 29 sexual offenders with data on this variable, 10 (34%) had a history of sexual abuse identified through records and/or self-report. In contrast, only 1 (3%) of the 32 nonsexual offenders with data on this variable had a history of sexual abuse.

Between-group differences were examined for exposure to severe violence, as previous research has identified a significant relationship between exposure to violence and social information processing (Shahinfar, Kupersmidt, & Matza, 2001). A t test
Table 1. Descriptive statistics for sexual and nonsexual offenders

<table>
<thead>
<tr>
<th></th>
<th>Sexual Offenders</th>
<th>Nonsexual Offenders</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mean</strong></td>
<td><strong>SD</strong></td>
<td><strong>N</strong></td>
</tr>
<tr>
<td>Age</td>
<td>15.5</td>
<td>1.2</td>
</tr>
<tr>
<td>Grade level</td>
<td>8.3</td>
<td>1.3</td>
</tr>
<tr>
<td>Full-Scale IQ Score</td>
<td>83.7</td>
<td>19.4</td>
</tr>
<tr>
<td>Frequency of exposure to severe violence</td>
<td>2.8</td>
<td>2.4</td>
</tr>
<tr>
<td>Frequency of nonsexual violent behavior</td>
<td>5.9</td>
<td>3.8</td>
</tr>
<tr>
<td>Number of close male friends</td>
<td>8.7</td>
<td>17.9</td>
</tr>
</tbody>
</table>

Table 2. Racial distribution and sexual abuse history of juvenile offenders

<table>
<thead>
<tr>
<th></th>
<th>Sexual Offenders</th>
<th>Nonsexual Offenders</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>History of sexual abuse</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>34%</td>
<td>3%</td>
</tr>
<tr>
<td>No</td>
<td>66%</td>
<td>97%</td>
</tr>
<tr>
<td>N=29</td>
<td></td>
<td>N=32</td>
</tr>
<tr>
<td><strong>Race</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>African-American</td>
<td>64%</td>
<td>63%</td>
</tr>
<tr>
<td>Caucasian</td>
<td>20%</td>
<td>24%</td>
</tr>
<tr>
<td>Hispanic/Latino</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>Asian</td>
<td>0%</td>
<td>2%</td>
</tr>
<tr>
<td>Native American</td>
<td>0%</td>
<td>4%</td>
</tr>
<tr>
<td>Multiracial</td>
<td>11%</td>
<td>4%</td>
</tr>
<tr>
<td>Other</td>
<td>2%</td>
<td>0%</td>
</tr>
<tr>
<td>N=44</td>
<td></td>
<td>N=49</td>
</tr>
</tbody>
</table>
indicated that there were no significant differences between sexual offenders and nonsexual offenders on frequency of exposure to severe violence, with both groups reporting exposure to approximately three violent events.

The frequency of nonsexual violent behavior was calculated to examine the rate of nonsexual offenses among juveniles who had also committed sexual offenses. A significant difference in rates of nonsexual violent behavior was identified between the two groups, with sexual offenders reporting more frequent acts of nonsexual violence than nonsexual offenders (means=5.9 and 4.1, respectively), \( t(87) = -2.41, p < .05 \).

Finally, given that sexual offenders have been described as reporting virtually no close friendships (e.g., Fehrenbach et al., 1986), the number of close male friends reported by the adolescents was compared between sexual and nonsexual offenders. The two groups reported similar numbers of close male friends, with means of 8.7 and 8.9 friends respectively, \( t(64) = .05, \) ns. The range in numbers of friends reported was quite high (0 to 100), but the majority of youth (92% of sexual offenders and 93% of nonsexual offenders) reported 15 or fewer friends. When means were examined using only this subset of youth, there were still no significant differences in the numbers of friends reported by sexual and nonsexual offenders (means = 4.2 and 5.0, respectively).

Assumptions Diagnostics

Prior to analyses, several preliminary data screening procedures were utilized to evaluate inferential assumptions. First, correlations among the subscales for the dependent variables of social goals, normative beliefs about aggression, and social self-efficacy were examined to test for multicollinearity (see Tables 3-5 for intercorrelations among dependent variable subscales). The five subscales for aggressive beliefs (saying...
something mean, robbing, hitting or beating up, forcing sexual activity, and shooting) were the most highly correlated variables, with correlations ranging from .11 to .80. Furthermore, the internal consistency of this scale improved when all subscales were combined into a single score; Cronbach’s alphas for the subscales ranged from .42 to .94, while Cronbach’s alpha for the entire scale was .96, indicating very strong internal consistency of the measure as a whole. For these reasons, and because the subscales from the original Normative Beliefs About Aggression Scale (Huesmann & Guerra, 1997) were altered for this study and have not been previously validated, the subscales for this measure were collapsed into a single score measuring overall belief in the acceptability of aggressive behavior. The remaining intercorrelations among dependent variables (for social goals and self-efficacy) were all under .70, thus none were high enough to cause significant multicollinearity problems in the computations involved in fitting the general linear model.

Histograms and z-scores were used to identify within-cell univariate outliers. One outlier was identified on the measure of aggressive beliefs and two outliers were found on the measure of outcome expectancy. Deletion of these outliers did not affect findings, however, so they were maintained in the sample. Multivariate outliers were examined using Mahalanobis distance, and none were identified.

Histograms and normal probability plots were utilized to evaluate the assumption of normality. Only the measure of aggressive beliefs was significantly skewed.
Table 3. Correlations among subscales for normative beliefs about aggression

<table>
<thead>
<tr>
<th></th>
<th>Saying something mean</th>
<th>Robbing</th>
<th>Hitting or beating up</th>
<th>Forcing sexual activity</th>
<th>Shooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saying something mean</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Robbing</td>
<td>.47*</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hitting or beating up</td>
<td>.78*</td>
<td>.67*</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forcing sexual activity</td>
<td>.17</td>
<td>.20</td>
<td>.11</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Shooting</td>
<td>.57*</td>
<td>.80*</td>
<td>.80*</td>
<td>.13</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Table 4. Correlations among subscales for social goals

<table>
<thead>
<tr>
<th></th>
<th>Affiliation – reverse coded</th>
<th>Avoidance</th>
<th>Dominance</th>
<th>Revenge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Affiliation – reverse coded</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avoidance</td>
<td>-.60*</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dominance</td>
<td>.16</td>
<td>.01</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Revenge</td>
<td>.46*</td>
<td>-.13</td>
<td>.55*</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Table 5. Correlations among subscales for social self-efficacy

<table>
<thead>
<tr>
<th></th>
<th>Aggression</th>
<th>Inhibiting aggression</th>
<th>Prosocial behavior</th>
<th>Verbal persuasion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aggression</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inhibiting aggression</td>
<td>.22</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prosocial behavior</td>
<td>.06</td>
<td>.50*</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Verbal persuasion</td>
<td>.31*</td>
<td>.62*</td>
<td>.58*</td>
<td>1.00</td>
</tr>
</tbody>
</table>

* correlation significant at p<.01
Transformations including log, inverse, and square root were attempted on this variable, but did not substantially improve the distribution; the variable was therefore preserved in its original form to maintain interpretability. Due to the sample size, analyses should be robust to violations of normality due to skewness.

To evaluate linearity and homoscedasticity, within-cell bivariate scatterplots were examined for all pairs of dependent variables, covariates, and dependent variable-covariate combinations. All scatterplots suggested acceptable linearity and homoscedasticity.

The Cronbach’s alphas for all measures utilized as dependent variables in this study are presented in Table 6. Aggressive beliefs, social goals, and social self-efficacy all displayed adequate internal consistency, but measures of hostile attributional bias and perceived outcomes of aggression were fairly low. In part, the low reliability of these scales may be due to their length; there were other four-item scales in these analyses, however, that demonstrated acceptable reliability. These scales are clearly not providing an adequately reliable measurement of the constructs that they are intending to measure, thus findings should be interpreted with caution. It is less likely that significant findings will be identified using these measures, as their reliabilities serve as an upper bound for their relationships with other scales.
<table>
<thead>
<tr>
<th>Measure/Subscale</th>
<th># of items</th>
<th>Cronbach’s alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aggressive beliefs summary score</td>
<td>60</td>
<td>0.96</td>
</tr>
<tr>
<td>Hostile attributional bias</td>
<td>4</td>
<td>0.39</td>
</tr>
<tr>
<td>Social goals</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Affiliation</td>
<td>4</td>
<td>0.67</td>
</tr>
<tr>
<td>Aviodance</td>
<td>4</td>
<td>0.68</td>
</tr>
<tr>
<td>Dominance</td>
<td>4</td>
<td>0.68</td>
</tr>
<tr>
<td>Revenge</td>
<td>4</td>
<td>0.70</td>
</tr>
<tr>
<td>Perceived outcomes of aggression</td>
<td>5</td>
<td>0.49</td>
</tr>
<tr>
<td>Social self-efficacy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aggression</td>
<td>13</td>
<td>0.87</td>
</tr>
<tr>
<td>Inhibiting aggression</td>
<td>14</td>
<td>0.76</td>
</tr>
<tr>
<td>Prosocial behavior</td>
<td>4</td>
<td>0.62</td>
</tr>
<tr>
<td>Verbal Persuasion</td>
<td>9</td>
<td>0.79</td>
</tr>
</tbody>
</table>
Examination of Covariates

Preliminary multivariate analyses of variance (MANOVAs) and correlations were conducted to identify significant covariates for inclusion in the analyses. Variables examined in these analyses included age at the time of testing, participant race, IQ as measured by the Wechsler Intelligence Scale for Children, frequency of exposure to severe violence, and frequency of nonsexual violent behavior.

For summary scores obtained from the measures on aggressive beliefs, outcome expectancies, and hostile bias, correlations were examined with all continuous potential covariates (age, IQ, exposure to violence, and frequency of violent behavior) and an analysis of variance was conducted for the categorical variable of race. Hostile bias and outcome expectancies were not significantly related to any of these variables. The normative beliefs measure, however, was significantly correlated with age ($r = .25, p < .05$), frequency of exposure to violence ($r = .26, p < .05$), and frequency of violent behavior ($r = .22, p < .05$). Older adolescents, adolescents with a higher frequency of exposure to violence, and adolescents who committed more nonsexual violent acts reported a stronger belief in the acceptability of aggressive behavior.

For the constructs of social self-efficacy and social goals, which have several subscales, MANOVAs were utilized to explore covariate relationships. For social goals, the effect for goal by age approached significance, $F(3, 207) = 2.64, p = .051$, as did the effect for frequency of violent behavior, $F(3, 186) = 2.41, p = .068$. Examination of univariate F tests indicated that older participants were less likely to hold affiliative goals and more likely to hold revenge goals. Adolescents who had participated in more violent
behavior were less likely to hold the goal of avoidance. No other significant associations were identified.

Neither intelligence nor race was significantly related to any social information-processing variables, but age, exposure to violence, and participation in violent behavior were all significantly related to one or more of these variables. Only one of these variables, frequency of participation in violent behavior, was significantly related to offense type, as described previously. To reduce error variance and control for subject differences, these three measures were entered as covariates in all of the analyses presented below.

Tests of Hypotheses

Based on the hypothesized differences between sexual and nonsexual juvenile offenders, seven tests of planned comparisons were completed. Planned comparisons were examined for the following hypotheses:

1. JSOs would have significantly higher scores that would nonsexual offenders on the acceptability of sexually aggressive behavior.

2. Nonsexual violent offenders would have significantly higher ratings of dominance and revenge goals than would JSOs.

3. JSOs would have significantly higher ratings on the goal of avoidance than would nonsexual offenders.

4. JSOs would have significantly lower scores on self-efficacy for both antisocial and prosocial behaviors and higher scores on refraining from antisocial behaviors than would nonsexual offenders.
Bonferroni-corrected univariate F tests were examined for these comparisons, with alpha of .007 needed for significance. Due to missing data, the sample sizes for these comparisons was considerably lower than the total 109 participants, ranging from 65 to 67. Because of the large amount of missing data, differences in demographic and covariate data between those with and without missing data on social information processing was explored. The only significant difference identified between these two groups was that those with missing data were older than those with complete data on social information processing, with mean ages of 15.8 versus 15.2, respectively ($t_{(92)} = -3.21$, $p < .01$). When participants with missing data on social information processing were removed from the sample, however, there was still no significant difference between the ages of sexual and nonsexual offenders, $t_{(68)} = 1.02$, ns.

The first test examined the hypothesis that JSOs would have significantly higher scores than would nonsexual offenders on the acceptability of sexually aggressive behavior (see Table 7 for group means on all dependent variables). An analysis of covariance (ANCOVA) controlling for age, exposure to violence, and frequency of nonsexual violent behaviors found no significant differences between sexual and nonsexual offenders on this subscale of the normative beliefs measure, $F_{(1, 61)} = 1.6$, ns. The following three planned comparisons examined differences in the social goals of dominance, revenge, and avoidance between sexual and nonsexual offenders. None of these comparisons reached the level of significance, but the test for the goal of dominance did approach significance, $F_{(1, 60)} = 5.42$, $p = .02$. Sexual offenders rated the goal of dominance higher than did nonsexual offenders, with means of 14.8 and 12.6, respectively. Finally, three planned comparisons were conducted to examine differences
in self-efficacy for antisocial, prosocial, and refraining from antisocial behaviors between sexual and nonsexual offenders. Again, none of these planned comparisons were significant.
Table 7. Group Means on Measures of Social Information Processing

<table>
<thead>
<tr>
<th></th>
<th>Sexual Offenders</th>
<th>Nonsexual Offenders</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Normative Beliefs</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1.59</td>
<td>0.52</td>
</tr>
<tr>
<td>Hostile Attributional Bias</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total score</td>
<td>0.26</td>
<td>4.68</td>
</tr>
<tr>
<td>Number of items showing bias</td>
<td>1.24</td>
<td>1.00</td>
</tr>
<tr>
<td>Social Goals</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Affiliation (reverse-coded)</td>
<td>13.60</td>
<td>3.42</td>
</tr>
<tr>
<td>Avoidance</td>
<td>10.57</td>
<td>3.69</td>
</tr>
<tr>
<td>Dominance</td>
<td>10.47</td>
<td>3.13</td>
</tr>
<tr>
<td>Revenge</td>
<td>11.84</td>
<td>3.84</td>
</tr>
<tr>
<td>Self-Efficacy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aggression</td>
<td>2.67</td>
<td>0.56</td>
</tr>
<tr>
<td>Inhibiting</td>
<td>2.40</td>
<td>0.46</td>
</tr>
<tr>
<td>aggression</td>
<td>2.73</td>
<td>0.61</td>
</tr>
<tr>
<td>Prosocial behavior</td>
<td>2.85</td>
<td>0.55</td>
</tr>
<tr>
<td>Verbal Persuasion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outcome Expectancies</td>
<td>2.13</td>
<td>0.68</td>
</tr>
</tbody>
</table>
Exploratory Analyses

To explore the data more fully for differences between sexual and nonsexual offenders, omnibus F tests and post hoc comparisons were examined. To reduce the error variance in the sample with the hopes of increasing power, matched pairs analyses were considered. Juveniles with histories of sexual offenses and those with histories of nonsexual violent offenses were matched on the three covariates identified above, specifically age, frequency of exposure to severe violence (± 1), and frequency of violent behavior (± 2). With these matching parameters, however, only 40 of 109 subjects could be matched (i.e., 20 pairs). Matching on only age and exposure to violence increased the sample size to 64, but because of missing data, most analyses were left with only 36 participants (18 pairs). This loss of sample size is troubling both because of the loss in degrees of freedom and because of loss of information for the remaining participants. For these reasons, to maintain optimal sample size, analyses of covariance were conducted on the entire sample to explore differences between sexual and nonsexual offenders.

Analyses of covariance were used to examine each of the five constructs within the social information-processing model. Bonferroni correction was used to maintain an experiment-wise error rate of .05; alpha was set at .01 for each separate analysis. The constructs of normative beliefs, hostile attributional biases, and outcome expectancy were each measured by single scores. For these constructs, one-way analyses of covariance were performed with offense type serving as the between-subjects independent variable (sexual versus nonsexual offense). Participant age, exposure to violence, and frequency of nonsexual violent behavior served as the three covariates. After adjustment for the covariates, no statistically significant effect was found for either normative beliefs, F(1,
61) = 0.0005, ns, or for hostile attributional biases, $F(1, 61) = 0.35, ns$. The variance for outcome expectancy with offense type, however, approached significance, with $F(1, 65) = 5.54, p = .02$. The strength of the relationship between outcome expectancy and offense type was small; 7.9% of the variance in the adjusted outcome expectancy scores was associated with offense type. The adjusted means, seen in Table 2, indicate that sex offenders are less likely to expect aggressive behavior to result in a positive outcome.

Multivariate analyses of covariance (MANCOVAs) were performed for the constructs of social self-efficacy and social goals, with offense type serving as the between-subjects independent variable (sexual versus nonsexual offense). Adjustment was made for the three covariates of age, exposure to violence, and frequency of nonsexual violent behavior. For social self-efficacy, subscales were calculated on types of social behaviors, including aggression, refraining from aggression, prosocial behavior, and verbal persuasion. These subscales were entered as dependent variables, with type of social behavior as the within-subjects independent variable. Using Pillai’s criterion, which is more robust to problems of unequal cell sizes, there were no significant main effects or interactions involving either offense type or type of social behavior on scores of social self-efficacy.

Social goals were examined in a second MANCOVA. Four subscales for social goals included avoidance, dominance, revenge, and affiliation, and goal type was included in the model as the within-subjects independent variable. Affiliation was reverse-coded so that all subscales represented non-desirable goals. Multivariate analysis using Pillai’s criterion identified one interaction, goal type by offense type, that approached significance, $F(3, 56) = 3.29, p = .027$. To explore this interaction, a
Cicchetti’s post hoc analysis was calculated. For a p-value of .05, the calculated critical value was 1.71. Using means adjusted for covariates, four intercell comparisons were significant at this level. First, dominance was rated as a significantly more important goal by juveniles in the sex offender group than it was by juveniles in the nonsex offenders group (difference in adjusted means = 2.06). Second, goal endorsement for reverse-coded affiliation was significantly lower than were endorsements for the goals of avoidance, dominance, and revenge for juveniles in the sex offender group. This indicates that for the sex offender group, not being affiliative was less important than the goals of avoidance, dominance, and revenge. In contrast, there were no significant differences among these four goals in the nonsex offender group.

Because past research has identified subgroups among JSOs based upon the age of their victims, analyses were also conducted to explore any differences between groups of JSOs with child victims versus those with peer victims. Juveniles who perpetrated against children at least 5 years younger than themselves were considered to have child victims, while those who perpetrated against older children or adults were considered to have peer victims. Analyses identical to those presented above were examined for the comparison of these groups. The only construct to show significant effects based on victim age was that of normative beliefs, $F(1, 25) = 6.08$, $p = .02$. Means indicated that juveniles with peer victims were more likely to endorse aggressive beliefs than were those with child victims (means = 1.93 and 1.46, respectively).
Cluster Analysis

Because of the exploratory nature of these analyses given the lack of previous research in this area, the data were also examined via cluster analysis to look for discrete patterns in social information processing across all juvenile offenders. For the purposes of data exploration and hypothesis generation, scales and subscales for each of the five constructs of social information processing were entered into a cluster analysis to identify any distinct patterns in the data. Variables entered included: summary scores for constructs of normative beliefs, hostile attributional biases, and outcome expectancy; four subscales for social goals; and four subscales for social self-efficacy. All variables were standardized with a mean of 0 and a standard deviation of 1 before being entered into the cluster analysis.

Cluster analysis was performed using Ward’s method of minimum variance, which was designed to optimize the minimum variance within clusters. This method uses the error sums of squares, as obtained in the formula

$$\text{ESS} = x_i^2 - \frac{1}{n}(\sum x_i)^2,$$

where $x_i$ is the score of the $i^{th}$ case. Clusters are developed by joining cases that produce the minimum increase in the error sums of squares. Ward’s method was chosen because it is the most powerful where there are overlapping clusters and is commonly used in the social sciences.

The score utilized for Ward’s method is that of a similarity (or dissimilarity) measure. Because of the intercorrelation among the variables entered into the cluster analysis, Mahalanobis distance was used as a measure of dissimilarity for this study. This metric is obtained using the formula
\[ d_{ij} = (X_i - X_j)' \Sigma^{-1} (X_i - X_j) , \]

where \( X_i \) and \( X_j \) are vectors of values of the cluster variables for cases \( i \) and \( j \). The advantage of this method is the inclusion of the variance-covariance matrix (\( \Sigma \)) to adjust for correlations among the variables.

The cluster analysis was attempted on the entire sample of 109 juveniles (both sexual and nonsexual offenders) to explore any distinct social information-processing patterns. Only 63 juveniles had complete data on all of the social information-processing variables, however, thus this sub-sample was used for the cluster analysis. Using a scree test of the semi-partial R\(^2\), a three-cluster solution appeared optimal. Analyses of variance (ANOVA\(s\)) were conducted to determine which of the clustering variables differentiated the three clusters. With the Bonferroni-corrected significance level set at .005, tests for the following variables reached significance: total hostile bias (\( p = .004 \)), rating of the goal of revenge (\( p = .002 \)), and rating of the goal of dominance (\( p < .0001 \)). Tests for the rating of the goal of affiliation (reverse-coded) and outcome expectancy both approached significance (\( p = .008 \) and \( p = .01 \), respectively). Tukey’s posttests were used to identify specific significant differences among clusters. Cluster one was significantly higher than both of the other clusters on hostile attributional bias and was significantly higher than cluster three on their expectation that aggressive behavior will be effective. Clusters one and two were both significantly higher than cluster three on ratings of the goals of revenge, dominance, and reverse-coded affiliation (see Table 8).

A chi square analysis was used to determine whether juvenile offense type (sexual versus nonsexual) was related to the clustering solution. This analysis was not significant, \( \chi^2(2, 63) =0.684 \), ns. Further chi square analyses and analyses of variance were
Table 8. Social Information-Processing Descriptives for Each Cluster

<table>
<thead>
<tr>
<th>Construct</th>
<th>Cluster 1 (n=40)</th>
<th>Cluster 2 (n=17)</th>
<th>Cluster 3 (n=6)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>Normative Beliefs</td>
<td>1.44</td>
<td>0.45</td>
<td>1.74</td>
</tr>
<tr>
<td>Hostile Attributional Bias</td>
<td>-0.83</td>
<td>3.52</td>
<td>2.53</td>
</tr>
<tr>
<td>Social Goals</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Affiliation (reverse-coded)</td>
<td>12.90</td>
<td>2.97</td>
<td>12.82</td>
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<td>Avoidance</td>
<td>10.18</td>
<td>2.79</td>
<td>11.24</td>
</tr>
<tr>
<td>Dominance</td>
<td>10.45</td>
<td>2.85</td>
<td>11.24</td>
</tr>
<tr>
<td>Revenge</td>
<td>10.60</td>
<td>2.75</td>
<td>11.88</td>
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<tr>
<td>Self-Efficacy</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Aggression</td>
<td>2.68</td>
<td>0.52</td>
<td>2.54</td>
</tr>
<tr>
<td>Inhibiting aggression</td>
<td>2.46</td>
<td>0.35</td>
<td>2.39</td>
</tr>
<tr>
<td>Prosocial behavior</td>
<td>2.81</td>
<td>0.57</td>
<td>2.49</td>
</tr>
<tr>
<td>Verbal Persuasion</td>
<td>3.01</td>
<td>0.46</td>
<td>2.74</td>
</tr>
<tr>
<td>Outcome Expectancies</td>
<td>1.95</td>
<td>0.42</td>
<td>2.08</td>
</tr>
</tbody>
</table>
completed to examine cluster differences by participant race, age, sexual victimization history, exposure to violence, and frequency of nonsexual violent behavior. None of these variables were significantly different among the three clusters.

Discussion

One of the most common clinical beliefs about juveniles who sexually offend is that they are relatively socially isolated and deficient in social skills, though to date there is little empirical evidence to support these assumptions. The current study was the first to examine social cognitive deficits in a population of juvenile offenders using the social information-processing model. In comparing incarcerated juvenile sexual offenders with incarcerated juveniles who have committed nonsexual crimes, some specific social cognitive deficits were identified. In particular, these findings are notable for highlighting focal differences at the later stages of the social information-processing model.

Normative Beliefs

Somewhat surprisingly, both sexual and nonsexual offenders in this sample reported that they believe aggressive behavior to be moderately unacceptable. Even though this sample represents some of the most violent and dangerous youth in North Carolina, they did not uniformly endorse an aggressive belief system. Several factors may have contributed to more socially desirable responses being given by this group of offenders on this measure. First, the measure of normative beliefs completed was a modified version of the original Normative Beliefs About Aggression Scale, and as such may not have captured deficits in normative beliefs as effectively. Individual differences in responding to this questionnaire were observed, however. Older adolescents, adolescents with a higher frequency of exposure to violence, and adolescents who
committed more nonsexual violent acts reported a stronger belief in the acceptability of aggressive behavior. These findings are consistent with those reported by Huesmann and Guerra (1997), thus supporting the validity of the revised measure used in this study.

A second possibility is that the context of the questionnaire administration may have affected the responses given by these offenders. Specifically, juveniles completed this questionnaire while incarcerated and with the knowledge that their responses would be read by their psychologist, which may have increased their motivation to respond in a socially desirable manner. Items on this measure of normative beliefs may have been particularly sensitive to these demand characteristics, as items were straightforward and participants were likely to recognize the socially appropriate responses.

When JSOs were divided into subgroups based on the ages of their victims, those who offended against peers or adults demonstrated stronger endorsements of aggressive behavior than did those who offended against younger children. Because of missing data on victim age, only 27 of the 46 JSOs could be used in this analysis; this finding may be stronger with a larger sample. Despite the small sample size, this finding is consistent with the clinical observations made by Lakey (1992) that juvenile sexual offenders who assault peers or adults are particularly likely to hold cognitive distortions supporting their behavior. Ryan and colleagues (1996) also determined that juveniles who sexually assault peers or adults are more likely to commit nonsexual violent offenses, thus it is possible that the juveniles with peer victims in the current study are more aggressive in general than are those with child victims, and therefore are more supportive of aggressive behavior. Adjudication information available in the current study does not appear to support this; juveniles with child victims and those with peer victims were equally likely
to have been adjudicated for additional nonsexual charges. These groups may differ in terms of severity of aggression, but this was not measured in the current study.

**Hostile Attributional Bias**

Juvenile sexual offenders were expected to demonstrate a hostile attributional bias in the majority of their responses when interpreting the intent of others in social situations. This pattern was not observed. Findings for JSOs and nonsexual offenders were comparable to one another, but both groups showed hostile attributions on just over one quarter of their responses. Without a normative comparison group, it is hard to know if this rate of hostile attributions is elevated above that of a nonoffending population. Hostile attributional biases have been consistently demonstrated in aggressive samples in previous research (e.g., Dodge & Coie, 1987, Slaby & Guerra, 1988), however hostile attributional biases may not be the key deficit for extremely antisocial youth. Indeed, even if this sample were slightly biased towards hostile attributions as compared to nonoffenders, they appear to be making nonhostile attributions in the majority of ambiguous social interactions; hostile attributional bias therefore does not appear to be the crucial element in their chronic aggressive behavior. Importantly, however, the internal consistency of this measure of hostile attributional bias was quite low (α = .39), thus this assessment tool may not be reliably measuring the construct. Youth may demonstrate a bias towards hostile interpretations of events only for certain types of scenarios.

**Social Goals**

No differences were identified between sexual and nonsexual offenders on ratings for revenge goals, but ratings for dominance did differ between groups. Contrary to
hypothesis, the goal of dominance was rated as more important by sexual offenders than it was by nonsexual offenders. This sample of sexual offenders reported particularly high rates of nonsexual violent behavior in addition to their sexual offenses, thus they may represent a more severely aggressive, mixed-offense group of JSOs than have previously been studied; as such, this sample may more favorably rate hostile goals. Alternately, juveniles who commit sexual offenses may be specifically biased towards the goal of dominance.

Previous literature has discussed the potential for dominance goals to serve as motivating factors in sexual offending. Using a measure of behavior in interpersonal situations, Ford and Linney (1995) determined that the social anxiety of sexual offenders can manifest in a greater desire to control interpersonal episodes by giving orders or dominating others. Indeed, sexual offending has been characterized as a way of achieving social success by controlling the victim (Monto et al., 1998). Research in the adult literature has also linked dominance motives with sexual aggression (e.g., Dean & Malamuth, 1997; Malamuth, 1986); specifically, dominance as a goal for sexual behavior is a significant predictor of the commission of sexual violence. The goal of dominance may be particularly characteristic of sexual offenders, perhaps due to issues of social anxiety or to unresolved vulnerabilities related to their own sexual victimization. Further, it may be that the heightened dominance goal in sexual offenders is the cause of the high rates of generalized violent behavior seen in this sexual offender sample. This important finding clearly warrants further study, as it has implications for the appropriate treatment of juveniles who sexually offend.
A second hypothesized difference in social goals was that due to their higher likelihood of depression and social anxiety, sexual offenders would place more value on the goal of avoidance than would nonsexual offenders. This hypothesis was not supported, as there were no significant differences identified on the goal of avoidance. The one variable that did demonstrate a significant relationship with the avoidance goal was that of frequency of violent behavior; participants who reported participating in more violent nonsexual behavior were less likely to be avoidant. It is possible, then, that the lack of findings for avoidance as a predictor for offense type is due at least in part to the specific sample of sexual offenders in this study. Because these JSOs represent a sample of serious and violent offenders with versatile offense patterns, they may be less avoidant than a group of juveniles who have committed only sexual offenses. This could not be explored in the current study due to the extremely small number of sexual offenders who reported no history of nonsexual violent acts. It is likely that a sample of sexual offenders being treated in the community (as opposed to a secure facility) would be required to more fully examine the social cognitive patterns of youth who commit only sexual crimes.

**Social Self-efficacy**

Contrary to expectation, no differences were found between sexual and nonsexual offenders on any scales within the self-efficacy measure. Likewise, there were no differences among scales for the two groups; participants felt equally confident in their abilities to act aggressively, refrain from aggression, act prosocially, and be verbally assertive. This does not support previous findings that aggressive children have low confidence in their abilities to enact nondeviant behaviors (Perry et al., 1986), though
self-efficacy was only moderate in all realms measured. On the contrary, these results indicate that poor response choices on the part of the aggressive juveniles in this sample are not the result of low self-efficacy for prosocial responses; it is possible that these juveniles have deficits in other aspects of response evaluation. This finding of acceptable self-efficacy for nondeviant behaviors suggests that interventions for these two groups of aggressive youth need not focus on building confidence for nonaggressive behaviors; rather, motivation for enacting nonaggressive behaviors may need to be enhanced.

**Outcome Expectancies**

Juvenile sexual offenders were expected to endorse the belief that verbal and physical aggression are effective means for achieving social goals. This hypothesis was supported, in that sexual offenders reported that they were “pretty sure” that aggressive behavior would be successful in achieving their desired results. This positive evaluation of the outcomes of deviant behavior is a common characteristic among aggressive youth (e.g., Perry et al., 1986). Although no differences between sexual and nonsexual offenders were predicted for this social information-processing skill, nonsexual offenders were more likely to expect aggressive behavior to result in positive outcomes than were sexual offenders, suggesting that nonsexual offenders may be especially motivated to act aggressively due to the expectation of positive results.

Both groups expressed moderate amounts of disapproval for the use of aggressive behavior when questioned about normative beliefs, yet both groups simultaneously acknowledged that aggressive behaviors are effective means of getting their needs met. These findings suggest that interventions and further research should particularly target on-line (in vivo) processing of social information rather than database cognitions (i.e.,
normative beliefs). Furthermore, it will be useful to examine outcome expectations for nonaggressive behaviors in this group of juveniles. It may be that one reason these youth choose aggressive behaviors despite their self-efficacy for prosocial behaviors is that they do not expect nonaggressive solutions to effectively meet their needs.

**Cluster Analysis**

Although distinct patterns of social information-processing skills were observed within this small sample of juvenile sexual offenders based upon the cluster analysis, these patterns were not meaningfully related to criterion variables. Perhaps the homogeneous nature of the sample with respect to the chronicity and severity of their previous illegal and violent behavior and the fact of their current incarceration and ongoing treatment mitigated against the opportunity to observe specific differences in skills. The restriction of range in offense type and severity may have removed any existing variability in the social information-processing patterns of juveniles who sexually offend. Study of a broader range of offenders will be necessary to further explore meaningful processing differences that may have treatment implications for separate subgroups of JSOs.

**Specific Sample Characteristics**

Overall, there were few distinct differences identified between sexual and nonsexual offenders in this study. One possible explanation for the observed pattern of findings is that the sample in this study was not representative of the entire population of juveniles who commit sexual offenses. To examine this possibility, variables that have been found to discriminate between groups of juvenile sexual and nonsexual offenders in past research were explored to determine whether the current group of sexual offenders is
comparable to samples used in previous studies. Similar to past findings (e.g., Ford & Linney, 1995; Milloy, 1994), JSOs in the current sample showed a significantly higher rate of childhood sexual abuse than did nonsexual offenders, with 34% of sexual offenders (as compared to 3% of nonsexual offenders) identified as past victims of sexual abuse according to records and self-report. Although not all sexual offenders had known histories of sexual abuse, nearly all juvenile offenders with sexual abuse histories perpetrated sexual offenses. This may indicate that when youth who have been sexually abused become aggressive, they are most likely to aggress in sexual ways at least some of the time. If this is the case, it will be extremely important for aggressive youth with known histories of sexual abuse to participate in prevention services targeting potential sexual violence. It is also possible, however, that sexual history, including potential sexual abuse, is more closely explored among juveniles who sexually offend; there may be a larger proportion of nonsexual offenders who have been victims of sexual assault, but have simply not reported it to anyone. In either case, it is clear that a substantial proportion of sexual offenders have known histories of sexual abuse. It will be crucial for these individuals to receive treatment to address their own victimization issues, as these issues are likely contributing to their sexually violent behavior.

Also consistent with the literature on sexual offenders, the group of JSOs in the current study had a high rate of nonsexual delinquent acts. Past research has indicated that 1/2 to 2/3 of juveniles adjudicated for sexual offenses were also adjudicated for nonsexual offenses (Awad & Saunders, 1991; Ryan et al., 1996). In the current sample of JSOs, 58% were adjudicated for an offense unrelated to sexual assault, such as armed robbery, physical assault, or larceny. In fact, 86% of sexual offenders in this study
reported that they have committed at least one violent nonsexual offense, while 93% reported committing at least one nonviolent delinquent offense. Interestingly, the sex offenders in this study reported a higher mean frequency of nonsexual violent acts than did nonsexual offenders (means = 5.9 and 4.1, respectively), indicating that this sample of sex offenders may be particularly aggressive in nonsexual realms as well.

In contrast to previous research, sexual and nonsexual offenders in the current study reported similar numbers of close same-sex friends, with averages of 8.7 and 8.9, respectively. Indeed, all sexual offenders in this study reported having at least one close friend. This is distinctly different from previous findings that 1/3 to 1/2 of JSOs report having no close friends, as compared to less than 1/5 of nonsexual offenders (e.g., Awad et al., 1984; Fehrenbach et al., 1986). It is unclear how the previous studies defined and inquired about friendships. Additionally, previous studies took place in Washington State and Canada; it is possible that there are geographical differences in the definition of friendship. Importantly, the current sample of JSOs did not report significant social isolation in terms of lack of friendships.

**Implications**

Although few distinct differences between sexual and nonsexual offenders emerged in the present study, distinct social cognitive deficits were identified in the later stages of social information processing. Any unique treatment needs should be considered to ensure that all juvenile offenders are getting optimal care during their incarcerations, not only for the well-being of the juveniles, but also for the prevention of future violent acts once they are released. One issue that clearly should be addressed with the sexual offender population is that of their own sexual victimization. Findings by
Veneziano et al. (2000) indicate that sexual offenders’ specific abuse histories predict what types of victims they choose as well as what types of sexual offenses they commit. Resolution of their personal emotional and physiological responses to abuse (e.g., post-traumatic stress disorder) may prevent re-offending behaviors.

Additionally, subtypes of sexual offenders may have different treatment needs. In the current study, differences in victim age were significantly related to approval of general aggression, with those who offended against peers or adults reporting a stronger belief in the acceptability of aggressive behavior. JSOs with different victim preferences may indeed have different motivations and processing deficits that lead them to sexually offend. Further research with larger samples of JSOs will be necessary to draw conclusions about specific differences and treatment needs of these potential offender subtypes.

Perhaps most importantly, results indicated that sexual offenders value the goal of dominance more highly than do nonsexual offenders. Treatment for sexual offenders should therefore target interventions that address dominance needs. Most cognitive-behavioral therapy with aggressive youth incarcerated in North Carolina Youth Development Centers focuses on enhancing skills to generate positive solutions to social problems. Youth who sexually offend may benefit more from a focus on reducing dominance goals and increasing affiliative goals, as they report that they already feel relatively confident in their abilities to behave prosocially should they desire to do so. The discrepancies of competing social goals should be highlighted, and skills should be developed that support prosocial resolution of social problems in the face of competing
goals. Furthermore, it will be beneficial to help these youth identify ways that they can meet their social, emotional, and physical needs without resorting to aggression.

**Future Directions**

This study was limited by a small sample size and restriction of range in the severity of aggressive and violent behavior. Because participants were limited to adjudicated adolescents incarcerated in a secure facility, they represented only the most extreme and violent offenders. Study of this population is useful in addressing treatment needs for those in secure institutional settings, but it cannot be necessarily generalized to a broader population of sexual and nonsexual offenders. Further research with a range of offenders differing by severity and frequency of offenses, as well as a comparison group of non-offending adolescents, would be useful to explore more general social information-processing patterns in juveniles who sexually offend. Research of this type could be used to inform intervention and prevention efforts for juveniles who have committed less severe sexual offenses or who appear at risk for sexually offending.

Future studies may also benefit from examining the psychological diagnoses of sexual and nonsexual offenders, as these differences may moderate or mediate the types of social information-processing deficits observed. For instance, depressed children have been found to blame themselves for negative events and for the aggressive behavior of their peers (Quiggle et al., 1992). Future scales examining hostile attributional bias may benefit from adding additional questions to assess this alternate bias. Specifically, the two questions following ambiguous vignettes in the current study assessed the juvenile’s interpretation of a negative event as aggressive or accidental. An additional question could be added to assess the belief that negative actions were carried out because of
something internal and stable to the character in the story, such as “he did it because he doesn’t like me” or “bad things just happen to me.” Additional items of this type may identify further processing discrepancies between sexual and nonsexual offenders.

Finally, the outcome expectancies of sexual offenders should be further investigated. Although sexual offenders in this study expected positive outcomes to follow aggressive behavior, their expectations were not as strong as those of nonsexual violent offenders. While expectation of material and social gain may partially motivate the aggressive behavior of sexual offenders, their aggressive behaviors (sexual and nonsexual) may be driven by other factors as well. Outcome expectancies should be explored in further detail to determine what other physical, mental, or emotional gains these juveniles believe will accompany their aggression. Such exploration may lead to more thorough understanding of the motivating factors driving sexually aggressive behavior, which can in turn inform treatment strategies for this challenging population of youth.
References


L. Marshall, & S. M. Hudson (Eds.), The juvenile sex offender (pp. # 182-202). New York: Guilford Press.

Appendix A: Endorsement of Aggressive Beliefs

My Beliefs

- Below is a list of things that you may believe or not.
- There are no right or wrong answers.
- Circle the number for how much you agree with each statement.

<table>
<thead>
<tr>
<th></th>
<th>Really disagree</th>
<th>Really agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. If I don’t like a guy, it’s OK to …</td>
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<td></td>
</tr>
<tr>
<td>say something mean to him.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>rob him.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>hit him or beat him up.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>make him do something sexual.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>shoot him.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>2. If I need to protect myself from a guy, it’s OK to …</td>
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<tr>
<td>say something mean to him.</td>
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<td>2</td>
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<td>rob him.</td>
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<td>hit him or beat him up.</td>
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<td>make him do something sexual.</td>
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<td>2</td>
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<tr>
<td>shoot him.</td>
<td>1</td>
<td>2</td>
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<tr>
<td>3. If a guy makes me really angry, it’s OK to …</td>
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<tr>
<td>say something mean to him.</td>
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<td>2</td>
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<tr>
<td>rob him.</td>
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<tr>
<td>hit him or beat him up.</td>
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<tr>
<td>make him do something sexual.</td>
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<td>2</td>
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<tr>
<td>shoot him.</td>
<td>1</td>
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<tr>
<td>4. If a girl makes me really angry, it’s OK to …</td>
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<tr>
<td>say something mean to her.</td>
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<td>2</td>
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<tr>
<td>rob her.</td>
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<tr>
<td>hit her or beat her up.</td>
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<tr>
<td>make her do something sexual.</td>
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<tr>
<td>shoot her.</td>
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<tr>
<td>5. If I want to get even with a guy, it’s OK to …</td>
<td></td>
<td></td>
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<tr>
<td>say something mean to him.</td>
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<td>2</td>
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<td>rob him.</td>
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<tr>
<td>hit him or beat him up.</td>
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<tr>
<td>make him do something sexual.</td>
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<tr>
<td>shoot him.</td>
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<td>Really disagree</td>
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<tr>
<td>6. If someone does something mean to me, it’s OK to …</td>
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</tr>
<tr>
<td>say something mean to him.</td>
<td>1 2 3 4 5</td>
<td></td>
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<tr>
<td>rob him.</td>
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<tr>
<td>hit him or beat him up.</td>
<td>1 2 3 4 5</td>
<td></td>
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<tr>
<td>make him do something sexual.</td>
<td>1 2 3 4 5</td>
<td></td>
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<tr>
<td>shoot him.</td>
<td>1 2 3 4 5</td>
<td></td>
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<tr>
<td>7. If I want sex and can’t have it, it’s OK to …</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>say something mean to someone.</td>
<td>1 2 3 4 5</td>
<td></td>
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<tr>
<td>rob someone.</td>
<td>1 2 3 4 5</td>
<td></td>
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<tr>
<td>hit someone or beat someone up.</td>
<td>1 2 3 4 5</td>
<td></td>
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<tr>
<td>make someone do something sexual.</td>
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<tr>
<td>shoot someone.</td>
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<tr>
<td>8. If I want to impress my friends, it’s OK to …</td>
<td>1 2 3 4 5</td>
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<tr>
<td>say something mean to someone.</td>
<td>1 2 3 4 5</td>
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<td>rob someone.</td>
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<tr>
<td>hit someone or beat someone up.</td>
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<tr>
<td>make someone do something sexual.</td>
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<tr>
<td>shoot someone.</td>
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<tr>
<td>9. If I feel powerless and want control over something, it’s OK to …</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>say something mean to someone.</td>
<td>1 2 3 4 5</td>
<td></td>
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<tr>
<td>rob someone.</td>
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<tr>
<td>hit someone or beat someone up.</td>
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<tr>
<td>make someone do something sexual.</td>
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<tr>
<td>shoot someone.</td>
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<tr>
<td>10. If I am really mad at my mom or dad, it’s OK to …</td>
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<tr>
<td>say something mean to someone.</td>
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<td>rob someone.</td>
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<tr>
<td>hit someone or beat someone up.</td>
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<tr>
<td>make someone do something sexual.</td>
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<tr>
<td>shoot someone.</td>
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<td></td>
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<tr>
<td>11. If I feel bored and have nothing to do, it’s OK to …</td>
<td>1 2 3 4 5</td>
<td></td>
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<tr>
<td>say something mean to someone.</td>
<td>1 2 3 4 5</td>
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<tr>
<td>rob someone.</td>
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<tr>
<td>hit someone or beat someone up.</td>
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<tr>
<td>make someone do something sexual.</td>
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<td>shoot someone.</td>
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</table>
12. If I need or want money, it’s OK to …

<table>
<thead>
<tr>
<th></th>
<th>Really disagree</th>
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<tbody>
<tr>
<td>say something mean to someone.</td>
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<tr>
<td>rob someone.</td>
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<tr>
<td>hit someone or beat someone up.</td>
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<tr>
<td>make someone do something sexual.</td>
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<tr>
<td>shoot someone.</td>
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</table>
Appendix B: Causal Attributions and Social Goals

What I Think

Story A: Your class has a new computer that has some fun computer games. The teacher tells the class that everyone should take turns trying these games. You have waited for a while and now it’s your turn. A classmate comes over and steps in to play the computer games before you. You tell him that it’s your turn and he is supposed to play after you, but this classmate says that he doesn’t want to wait any longer and wants to play the games now.

1. First, I’m going to ask you why you think that your classmate did that. For example, your classmate could have taken a turn ahead of you because he just really wanted a turn or because he was trying to be mean to you.
   a. Do you think he did it because he was trying to be mean?  1  2  3  4  5
   b. Do you think he did it because he just really wanted a turn?  1  2  3  4  5

2. Now, I’m going to ask you what your goal in this situation would be – what you would want or hope to happen.
   a. Would you want to get back at the guy for what he just did?  1  2  3  4  5
   b. Would you want to get along with this classmate and make sure that you both get to play the computer games?  1  2  3  4  5
c. Would you want to show him that you are in charge?

   YES, definitely          Yes, probably          Maybe yes, probably not          No, probably          NO, definitely not

   1  2  3  4  5

d. Would you want to get away from the situation and avoid a problem with this classmate?

   YES, definitely          Yes, probably          Maybe yes, probably not          No, probably          NO, definitely not

   1  2  3  4  5
Story B: Imagine you are sitting at the lunch table. You look up and see another kid coming over to your table with a carton of milk. You turn around to eat your lunch, and the next thing that happens is that the kid spills the milk all over your back. The milk gets your shirt all wet.

1. First, I’m going to ask you why you think this kid did this. For example, your classmate could have spilled the milk by accident or on purpose and was trying to be mean to you.
   a. Do you think he did it on purpose because he was trying to be mean?  
      1 2 3 4 5
   b. Do you think he did it by accident? 
      1 2 3 4 5

2. Now, I’m going to ask you what your goal in this situation would be – what you would want or hope to happen.
   a. Would you want to get along with this guy? 
      1 2 3 4 5
   b. Would you want to show him you are in charge? 
      1 2 3 4 5
   c. Would you want to get away from the situation and avoid a problem with this guy? 
      1 2 3 4 5
   d. Would you want to get back at the guy for what he just did? 
      1 2 3 4 5
Story C: You sharpen some pencils at school and you are walking back to your seat. A classmate has his foot in the aisle and you trip over it, dropping your pencils.

1. **First, I’m going to ask you why you think that happened.**
   a. Do you think he wasn’t watching and tripped you by accident?
   b. Do you think he tripped you on purpose because he was trying to be mean?

2. **Think about your goals in this situation where you tripped over his feet – what you would want or hope to happen.**
   a. Would you just want to get away from the situation and avoid a problem with the guy?
   b. Would you want to get back at him for causing you to trip?
   c. Would you want to work things out with him and make sure that everyone is okay?
   d. Would you want to show him he can’t get away with that and that you are in charge?
Story D: Imagine you bought a new CD player. You saved your money to buy the CD player and you want to show it off. You let another kid play with it for a few minutes while you go to get a drink of water. When you get back, you realize that the kid has broken your brand new CD player.

1. **Why do you think that happened?**
   a. Do you think he did it on purpose because he was trying to be mean? 1 2 3 4 5
   b. Do you think he did it by accident? 1 2 3 4 5

2. **Now, I’m going to ask you what your goal in this situation would be – what you would want or hope to happen.**
   a. Would you want to show him you are in charge? 1 2 3 4 5
   b. Would you want to get away from the situation and avoid a problem with this guy? 1 2 3 4 5
   c. Would you want to get back at the guy for what he just did? 1 2 3 4 5
   d. Would you want to get along with this guy?
Appendix C: Perceived Consequences Questionnaire

What I Expect To Happen

Check the answer that best fits what you think would happen in each situation.

1. A kid is teasing you at school by calling you names. To make him stop, you call him names back. What do you think he will do now?
   __ ___ Very sure he will stop teasing you
   ___ _ Pretty sure he will stop teasing you
   ___ _ Pretty sure he will keep on teasing you
   ___ _ Very sure he will keep on teasing you

2. During gym, you and your friends want to play basketball. Another kid has the only basketball and doesn’t want to play with you. You decide to go over and take the ball away from him so that you and your friends can play with it. Do you think you will get to play with the ball?
   __ ___ Very sure I will get to play with the ball
   ___ _ Pretty sure I will get to play with the ball
   ___ _ Pretty sure I won’t get to play with the ball
   ___ _ Very sure I won’t get to play with the ball

3. You are at the front of a long lunch line at school. A guy comes up and tries to cut in front of you. You call him bad names and threaten to get him later. Do you think you will keep your place at the front of the line?
   __ ___ Very sure I will keep my place
   ___ _ Pretty sure I will keep my place
   ___ _ Pretty sure I won’t keep my place
   ___ _ Very sure I won’t keep my place

4. A new kid comes to training school and he looks scared. You want some extra cookies at lunch so you tell the kid you will get him later if he doesn’t give you the cookies. Do you think he will give you the cookies?
   __ ___ Very sure he will give me the cookies
   ___ _ Pretty sure he will give me the cookies
   ___ _ Pretty sure he won’t give me the cookies
   ___ _ Very sure he won’t give me the cookies
5. You really want money to buy a CD player. Your cousin says he knows an easy way to get some money. You and your cousin go to a corner near a bank machine. Your cousin robs a woman and uses a gun while you grab the money. Do you think you will be able to keep the money?

____ Very sure we will keep the money
____ Pretty sure we will keep the money
____ Pretty sure we won’t keep the money
____ Very sure we won’t keep the money
Appendix D: Self-Efficacy Questionnaire

What Things Are Like For Me To Do

- Read each question carefully and pretend what it says is happening to you.
- Circle how easy it would be for you to do the things in each one.
- Some kids your age think these things are hard to do, other kids your age think these things are easy to do.
- We want you to circle the answer that is really true for you.
- Remember this is not a test. There are no right or wrong answers.

<table>
<thead>
<tr>
<th></th>
<th>REALLY HARD</th>
<th>sort of hard</th>
<th>sort of easy</th>
<th>REALLY EASY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>A kid is playing with a game that you want to play with. You ask the kid if you can play too, but the kid says “not right now”. Calling the kid bad names is _____ for you.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2.</td>
<td>While playing basketball, one of your teammates is not paying attention and lets the ball get stolen away by the other team. Calling your teammate a bad player is _____ for you.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>3.</td>
<td>You’re getting in line to go to lunch and a kid bumps into you. Kicking the kid is _____ for you.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4.</td>
<td>A kid is standing at the door to your class when you’re in a hurry to get all your stuff together and leave at the end of school. Shoving the kid out of your way is _____ for you.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>5.</td>
<td>A kid in lunch bumps into you and you spill your drink all over the floor. Not yelling at the kid is _____ for you.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>6.</td>
<td>Some of your friends are teasing another kid. Not joining in and teasing the kid is _____ for you.</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<td></td>
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<tr>
<td>7. While playing basketball, a kid pushes into you while you’re trying to make a shot. Not pushing the kid back is ____ for you.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>8. The class is working on an art project and you really want to use the big paint brush for your poster, but another kid takes the big brush just as you reach for it. Not grabbing the brush is ____ for you.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>9. A new kid comes to school and doesn’t have any friends yet. Talking to the new kid so that the kid doesn’t feel lonely is ____ for you.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>10. A kid tries to take your turn during a game. Telling the kid it’s your turn is ____ for you.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>11. You are working on a project. Asking another kid to help is ____ for you.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>12. A kid you know tells lies about another kid so that the other kids won’t like him/her. Not joining in and telling lies is ____ for you.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>13. A kid in your class has some money. Your friend tells you to take the money. Telling your friend no is ____ for you.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>14. A kid comes to school with a new haircut and all the other kids laugh at the kid with the new haircut. Saying something nice to the kid to make the kid feel better is ____ for you.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>15. The kids are playing a game that you don’t like to play. You suggest a different game, but the kids say nothing. Yelling at the kids so that they have trouble playing the game is ____ for you.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
16. A kid wears some clothes that you don’t like. Making fun of the kid is ____ for you.  
   
   1 2 3 4

17. You see a kid laughing with another kid and looking over at you. Hitting the kid is ____ for you.  
   
   1 2 3 4

18. Some kids get mad and start fighting. Joining in and fighting is ____ for you.  
   
   1 2 3 4

19. You see two kids looking at you and laughing. Not calling the kids bad names is ____ for you.  
   
   1 2 3 4

20. Your friends are playing a game in gym but one of the kids is not as good as the rest at the game. It takes some of the fun out of it. Not teasing and calling the kid names is ____ for you.  
   
   1 2 3 4

21. On your way to school, a kid bumps into you and you drop your things in the dirt. Not shoving the kid into a mud puddle is ____ for you.  
   
   1 2 3 4

22. Some kids are punching and kicking another kid in your class. Not joining in and punching and kicking the kid is ____ for you.  
   
   1 2 3 4

23. A kid comes to school with a new haircut and all the other kids laugh at the kid with the new haircut. Saying something nice to the kid to make the kid feel better is ____ for you.  
   
   1 2 3 4

24. A kid cuts in front of you in line. Telling the kid not to cut in is ____ for you.  
   
   1 2 3 4

25. You’re working on a project and everyone needs a partner. Asking someone to be your partner is ____ for you.  
   
   1 2 3 4
26. Some kids try to keep a certain kid from being in their group when it’s time to play or do an activity. Leaving out that kid is _____ for you.

27. A friend wants you to do something that will get you in trouble. Telling the kid you don’t want to do it is _____ for you.

28. A kid is inviting others in the room to play a game with him and you are not invited. Saying mean things to the kid is _____ for you.

29. A kid in your class gives the wrong answer to a question. Laughing at the kid is _____ for you.

30. You’re playing a game and someone takes your turn. Hitting the kid is _____ for you.

31. At the end of gym, you run to the drinking fountain to get a drink of water. Another kid is also running to the drinking fountain. Pushing the other kid so that you can get there first is _____ for you.

32. You lent a kid some money and he/she still hasn’t paid you back. Not yelling at the kid is _____ for you.

33. One of the little kids keeps tagging along while you are talking and playing games with your friends. Not yelling at the kid is _____ for you.

34. At lunch, a kid knocks your drink all over and really makes a mess. Not getting back at the kid by knocking over the kid’s drink is _____ for you.
<table>
<thead>
<tr>
<th>Question</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>35. A kid is sitting in the seat you wanted in front of the TV. Not pushing the kid out of the seat is ____ for you.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>36. At gym, you and your friends are playing baseball. You and another kid both want to play the same position. Letting the other kid play that position is ____ for you.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>37. A kid is teasing you. Telling the kid to stop is ____ for you.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>38. Some kids are going to lunch. Asking if you can sit with them is ____ for you.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>39. Some kids tell another kid that they will stop being his/her friend unless he/she does what they say. Telling another kid this is ____ for you.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>40. A friend wants you to help beat up another kid. Telling your friend you don’t want to do it is ____ for you.</td>
<td>1 2 3 4</td>
</tr>
</tbody>
</table>