A CLUSTER-ANALYTICALLY DERIVED

TYPOLOGY OF JUVENILE SEX OFFENDERS

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A CLUSTER-ANALYTICALLY DERIVED TYPOLOGY OF JUVENILE SEX OFFENDERS

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A CLUSTER-ANALYTICALLY DERIVED TYPOLOGY

OF JUVENILE SEX OFFENDERS

Miranda L. Higgins

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VITA

Miranda Loper Higgins was born in Gainesville, Florida to her parents David A. and Tambria B. Loper. She has one younger brother, Dylan. Miranda grew up in Keystone Heights, Florida and graduated from Keystone Heights Jr./Sr. High School in 1998. She participated in many activities as a child and teenager to include dance, piano, and scrapbooking. She completed her B.S. in psychology and her B.A. in French at the University of Florida in 2002, graduating with Highest and High Honors, respectively. During college she engaged in research about children with behavioral disorders and volunteer work with troubled children and teens. These experiences solidified her interest in psychology. Following graduation from college she immediately began doctoral training at Auburn University in 2002. During graduate school Miranda's interests expanded to include juvenile delinquents and victims of various forms of abuse. Miranda obtained her Master's degree in the child specialty of Clinical Psychology in 2006 and became a doctoral candidate in the child specialty. From July 2007 to June 2008 she completed her clinical psychology internship at William S. Hall Psychiatric Institute in Columbia, South Carolina. On August 6, 2007, she married 1LT Steven C. Higgins, a wonderful man and son of Major General (Retired) and Mrs. George A. Higgins.

DISSERTATION ABSTRACT

A CLUSTER-ANALYTICALLY DERIVED TYPOLOGY

OF JUVENILE SEX OFFENDERS

Miranda L. Higgins

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Juvenile sex offenders are part of a heterogeneous population and appear to differ on numerous variables such as offense and victim type, family background, sexual offending characteristics, and psychopathology. Several researchers have utilized cluster-analytic techniques on personality measures in an effort to form a typology of juvenile sex offenders that contains clinical utility and more understanding of this complex group of adolescents. In order to build on the previous research and contribute to this literature, the goal of the present study was to develop an empirically-derived typology using cluster analytic techniques on the MACI and use a large number of validation measures to show differences between clusters. Pre- and post-treatment data

from 440 juveniles (average age = 15.85) adjudicated with a sexual offense were used. Utilizing hierarchical cluster analysis (Ward's method, squared Euclidean distance), a 5-cluster solution was formed, supporting the first hypothesis that a cluster solution with 4 to 8 clusters would be created. A comparison of this cluster solution with a random selection of half the sample yielded 4 similar clusters based on MACI score elevations, providing support to the second hypothesis that the clusters would be stable. Numerous validation measures tapping into characteristics deemed relevant in the lives of juvenile sex offenders were compared to the clusters; results provided mixed support for the third hypothesis that significant differences across clusters would be found. Differences across groups were found on history of psychological/psychiatric treatment, sexual abuse history, amount of trauma, psychopathy, internalizing/externalizing problems, psychosexual characteristics, attachment, and substance abuse. Based on MACI scale scores and validation measures the following cluster constellations were formed: a Broadly Disturbed Cluster (N = 42); an Anxious/Submissive/Passive Cluster (N = 171); a Dysthymic/Shame-Based/Negative Self-Image Cluster (N = 94); a Narcissistic Delinquent Cluster (N = 83); and a Distressed Delinquent Cluster (N = 50). Several clusters formed were consistent with descriptions of clusters in previous research. The clusters from the present study are described and treatment implications for the cluster groups are suggested. Study limitations and cluster analysis are discussed and directions for future research are offered. In conclusion, a stable, clinically-relevant typology of juvenile sex offenders was formed based on personality traits, providing support for the importance of a classification system with this heterogeneous group.

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INTRODUCTION

Characteristics of Juvenile Sex Offenders

It is widely known that juvenile sex offenders are a heterogeneous group of individuals (Bourke & Donohue, 1996; Knight & Prentky, 1993). They differ with regard to offense and victim characteristics, family environment, child maltreatment history, interpersonal relationships and skills, knowledge of sex, sexual experiences, academic and cognitive functioning, and psychopathology (Knight & Prentky, 1993; Weinrott, 1996). Some of these variables may be important in the development of a typology of juvenile sex offenders.

Classification

The goal of classification is to "uncover the laws and principles that underlie the optimal differentiation…of a domain into subgroups that have theoretically important similarities" (Prentky & Burgess, 2000, p. 25). The greater the heterogeneity of the domain, the more important it is to develop a classification system (Prentky & Burgess, 2000).

Classification systems should help researchers and clinicians understand characteristics of juvenile sex offenders. There are four main tasks of classification systems for sex offenders (Prentky & Burgess, 2000). First, to help with the apprehension of the offender through investigative profiling. Second, classification systems may guide decisions about prosecution and disposition by the criminal justice

system. Third, systems of classification may inform treatment plans and programs. Finally, theories of etiology or ideas of offender life history that led to sexual offending behavior may be better discovered by reliance on effective classification.

Juvenile sex offenders are a heterogeneous group in that their family backgrounds, social skills, interests, psychological functioning, and form of sexual offending are very different (Flitton & Brager, 2002). This makes the development of a classification system a difficult task, but a critical one; for to learn more about the etiology and intervention needs of this population, researchers must be able to discern the differences between particular subgroups (Becker, 1998; Davis & Leitenberg, 1987; Kaufman, Hilliker, & Daleiden, 1996; Richardson, Kelly, Bhate, & Graham, 1997; Worling, 1995). Unfortunately, current typologies appear to have little utility, few helpful explanations, and lack vigorous construction (Rich, 2003). Moreover, because they have been derived intuitively and have not been subjected to empirical validation (Veneziano & Veneziano, 2002), the validity of revealed distinctions is unknown.

With regard to sexual offenders, typologies may be derived from offense category or personality traits, or some combination of offense type and personality characteristics using multivariate statistical techniques and hierarchical cluster analyses (Veneziano & Veneziano, 2002). Few researchers have attempted to form comprehensive sexual offender typologies, yet forming such typologies may provide useful information on etiology, treatment, and prognosis for this population. In the present study, a typology of juvenile sexual offenders was created utilizing cluster-analytic techniques.

Psychiatric Classification

The *Diagnostic and Statistical Manual (DSM)* of the American Psychiatric Association (APA, 1952, 1968, 1980, 1987, 1994) has included a category for pedophilia across publications. Specific criteria for classifying pedophilia were not included in the first two editions of the *DSM*, although subsequent editions of the *DSM* have provided more information. The *DSM-IV* description of pedophilia has the following criteria: over a period of at least 6 months, the individual has recurrent, intense sexually arousing thoughts, sexual urges, or behaviors involving sexual activity with a prepubescent child or children (typically age 13 or younger), the individual has acted upon these sexual proclivities, or the urges or fantasies cause significant distress or interpersonal impairment, and the individual is at least 16 years old and at least 5 years older than the child or children. Individuals in late adolescence who have an ongoing sexual relationship with a 12 or 13-year-old child are not considered to meet criteria for pedophilia. Clinicians are to specify if the individual meeting criteria for pedophilia is sexually attracted to males, females, or both, if the pedophilia is limited to incestuous relationships, and if the pedophilia is exclusive to children or is nonexclusive to children.

The profound limitation of this form of classification in the *DSM* is that there is only a single categorical diagnosis for everyone who engages in sexual behaviors with children (Prentky & Burgess, 2000). Even with this classification system, the *DSM* does not adequately classify all child molesters. Plus, rapists have never been included in the *DSM* classification system, as it has been argued that the *DSM* was not constructed to classify the wide range of criminals (Prentky & Burgess, 2000). In sum, the *DSM*

classification system has limited value in typology development for juvenile or adult sex offenders.

Single Dimension Typologies

Most investigators have followed the lead of research with adult sexual offenders by contrasting adolescents who victimize children to those who offend against peers or adults: the "child molester" versus "rapist" dichotomy (Awad & Saunders, 1991; Carpenter, Peed, & Eastman, 1995; Ford & Linney, 1995; Hagan & Cho, 1996; Hsu & Starzynski, 1990; Saunders, Awad, & White, 1986; Worling, 1995). The major distinction between these two groups is based on age differences between the offender and the victim, and not necessarily the stereotypical view of rape (e.g., forced penetration) or child molestation (e.g., fondling a young child).

Many other distinctions between adolescent sexual offenders labeled as child molesters and rapists exist. For instance, child molesters victimize females slightly more than they victimize males, almost half offend against at least one male, and about 40% of victims are siblings or relatives (Hunter, Hazelwood, & Slesinger, 2000). In contrast, rapists victimize females almost exclusively and usually assault strangers or acquaintances (Hunter et al., 2000). Another distinction is that child molesters are opportunistic and cunning with victims who are relatives and groom the child by making bribes or threatening the relationship (Hunter et al., 2000; Kaufman et al., 1996), whereas rapists are more likely to commit the sexual offense while engaging in other criminal activities and are more likely to victimize others in public places (Hunter et al., 2000).

Social and criminal history tends to differ between child molesters and rapists. Specifically, child molesters have low self-esteem, deficits in social competency, and

lack skills needed to build and maintain sound interpersonal relationships (Awad & Saunders, 1989; Monto, Zgourides, & Harris, 1998) while rapists tend to have nonsexual criminal offense histories and are typically conduct-disordered (Richardson et al., 1997). Another distinction between child molesters and rapists is that their behavior patterns differ, with child molesters frequently exhibiting depressive symptomatology (Becker, Kaplan, Tenke, & Tartaglini, 1991) and rapists showing high amounts of violence and aggression, as they tend to use weapons and physically injure their victims (Awad & Saunders, 1989; Monto et al., 1998). Importantly, child molesters with severe personality and/or sexual problems may show high levels of aggression and violence (Becker & Hunter, 1993) so the distinction between rapists and child molesters may be difficult to make based on offense violence alone.

Some findings based on the child molester and rapist group differences have mixed results. For instance, while some researchers have found that adolescent child molesters have low self-esteem and are isolated from others (Carpenter et al., 1995; Saunders et al., 1986), other researchers have found no group differences in these areas (Ford & Linney, 1995; Worling, 1995). With regard to familial variables, Worling (1995) found that juveniles who victimize peers and adults have experienced more extensive physical abuse than adolescent child molesters, whereas Ford and Linney (1995) found opposite results.

There are several possible reasons for inconsistent findings of adolescent rapist and child molester differences. One is that sample sizes are often small, with less than 30 subjects per group, and consistent differences may only be found with larger groups. Another reason is that victim age and gender are typically confounded, as child molesters

victimize males, females, or both and adolescents who rape peers or adults usually victimize females (Worling, 1995). Thus, it appears that most comparisons between adolescent child molesters and rapists are "simultaneous and unplanned comparisons based partially on victim gender" (Worling, 2001, p. 150). It also seems that the differences are based on forming convenient groups without an empirical basis for making that distinction. Another confound to forming subgroups based on victim age is that some research suggests that 18% (Worling, 1995) to 27% (Wieckowski, Hartsoe, Mayer, & Shortz, 1998) of offenders victimize both children and peers/adults. Further, some researchers do not adequately describe how they classify or exclude offenders with victims from both age groups (Worling, 2001). Finally, it is also possible that the inconsistent findings are due to a lack of different personality types between adolescent rapists and child molesters (Worling, 2001).

Unfortunately, the rapist/child molester categories commonly used in the adult sex offender literature do not seem to form homogenous (Hunter et al., 2000) or meaningful groups in juvenile sex offenders. Some researchers propose that there are few important differences between adolescent rapists and child molesters and question the utility of forming groups of offenders based on victim age (e.g., Hagan & Cho, 1996; Hsu & Starzynski, 1990). Moreover, no empirical evidence for the clinical utility of the rapist and child molester dichotomy in juvenile sex offenders has been found, which makes the formation of clinical distinctions for adolescents of utmost importance for the field.

Several other single dimension classification systems have been examined. Some researchers have investigated sibling incest (Araji, 1997; O'Brien, 1991), although it

seems that offenders who engage in sibling incest are a heterogeneous group (Righthand & Welch, 2001). Female juvenile sex offenders are typically classified separately from males and even compared to them (Bumby & Bumby, 1997; Ray & English, 1995). Other researchers focus on juvenile sex offenders with mental retardation and claim that they comprise a separate group of offenders (Gilby, Wolf, & Goldberg, 1989). Some work examines young children who sexually victimize others as a different category of sexual offender (Araji, 1997; Gries, Goh, & Cavanaugh, 1996; Ryan, 1999). Hunter and colleagues (2000) found differences between male juvenile sex offenders who victimize children and those who victimize peers or adults and Bijleveld and Hendriks (2003) differentiated group from solo juvenile sex offenders.

While most researchers have considered one or two dimensions of juvenile sexual offending, typologies with one or even a few dimensions usually are not very useful to clinicians compared to typologies with a comprehensive range of characteristics and risk factors (Rasmussen, 2004). In the next section, typologies with multiple dimensions will be presented.

Offense-Driven Classification Systems

Graves, Openshaw, Ascione, and Erickson (1996) conducted a meta-analysis of 140 samples involving 16,000 juvenile sex offenders. These researchers identified three forms of juvenile sex offenders by offense type and victim age: the pedophilic offender, the sexual assault offender, and the mixed offense offender. Pedophilic adolescents tend to lack interpersonal skills and are socially isolated. They molest children, mostly girls, who are at least three years younger than themselves. They tend to live in foster care and have a sixth grade level of education. Their families are dysfunctional and are typically

in the lower to mid range of socioeconomic status (SES). Juveniles who are sexually assaultive tend to offend against peers or older females. They usually come from low to mid-SES backgrounds, single-parent families, and have fathers who abuse alcohol. Those with mixed offenses have victims with widely varying ages. They tend to come from lower-SES dysfunctional families, are Protestant, and have high school-level education. While the value of this typology system seems to be the inclusion of familial variables, no other research has replicated this typology.

Prentky, Harris, Frizzell, and Righthand (2000) devised a typology to develop and validate an actuarial risk assessment for juvenile sex offenders called the Juvenile Sex Offender Assessment Protocol (J-SOAP). This rationally-derived typology based on 96 adolescents consists of 6 offense categories: Child Molesters, Rapists, Sexually Reactive Children, Fondlers, Paraphiliac Offenders, and Unclassifiable Offenders. Child molesters comprised 69% of their sample and were defined as juveniles who molested children ages 11 and younger who were at least 5 years younger than them. Rapists made up 12.5% of the sample and sexually abused victims who were 12 years old or older and less than 5 years younger than them. Sexually Reactive Children made up 6.25% of the sample and were described as children 11 years old or younger who abused victims who were also under 11 years of age. Fondlers were in 3% of the sample and fondled or touched victims who were 12 years old or older and less than 5 years younger than them. Paraphiliac Offenders were also in 3% of the sample and did not physically touch their victims. The final group, the Unclassifiable Offenders, consisted of 6.25% of the sample. Unfortunately, these categories are based on a small number of juvenile sex offenders and the classification appeared to be out of convenience and definitional, rather than to

describe different types of sex offenders. Further, no empirical research has established the validity of this offense-driven system. Finally, the categories were created to establish a measurement of risk for sexual reoffense rather than to form a typology of juvenile sex offenders.

Hunter, Figueredo, Malamuth, and Becker (2003) developed an empirically-based typology based on victim age by comparing 157 adolescent males with a hands-on offense against a male or female child under 12 years of age with 25 adolescent males with a hands-on offense against a female 12 years of age or older. It was found that juveniles who victimized prepubescent children had more psychosocial difficulties, were less aggressive in their sexual offenses, and were more prone to victimize relatives. They also had higher rates of depression. Juveniles who offended against females aged 12 and older were more likely to use force and a higher degree of force than those who victimized prepubescent children. One limitation of this study is that there was a small number of subjects who victimized pubescent females, so it is possible that there was inadequate power to detect group differences on some variables. Due to the small sample size, there may also be limited generalizability of the study sample of juveniles who victimize adolescent females. The study sample only included juvenile sex offenders in institutional treatment programs who volunteered for study participation, so the self-selection bias may limit findings, as juveniles who participate may differ substantially from those who refuse participation. Finally, many of the self-report measures used in this study were developed for adults and do not have norms for juveniles.

Butz and Spaccarelli (1999) attempted to form a typology based on the use of physical force. Based on data from 101 male juvenile sex offenders ages 12 to 19 with a

mean age of 15.02 (*SD*=1.6), it was found that rapists (i.e., those who use force) reported more fantasies of sexual assault and predatory behavior compared to nonrapists and those who denied committing a sex offense. This study is limited by the small sample size, the lack of investigating other variables that may be associated with aggression such as impulsivity, lack of empathy, and exposure to domestic violence, and defining rapist differently from most studies of juvenile sex offenders where rape is defined as sexual contact with a same-aged peer or an adult. However, the findings suggest that aggression and physical force may provide important distinguishing information for some juvenile sex offenders. Thus, these variables should be pursued, with larger and more precise measures of physical force/violence variables. Such variables were examined in the typology formation of the current study.

Clinically-Derived Multidimensional Classification Systems

A classification system with seven typologies rooted in factors such as personality, victim age, family life, delinquency, and sexual history was developed based on information from the evaluation and treatment of more than 350 adolescent sex offenders (O'Brien & Bera, 1986). These categories are as follows: the Naïve Experimenter, the Undersocialized Child Exploiter, the Pseudosocialized Child Exploiter, the Sexual Aggressive, the Sexual Compulsive, the Disturbed Impulsive, and the Group Influenced. While this taxonomy seems interesting and has face validity, no empirical research has investigated its validity or reliability (Witt et al., 2002).

Based on a summary of juvenile sex offender literature, Flitton (1999) proposed four types of juvenile sex offenders. The opportunistic offender offends out of curiosity, sexual reactivity, or influence from peers, and usually does not have a history of sexually

offending on others. The offense tends to be impulsive and the offender has few psychological and behavioral problems. The offending behavior may be addressed by parents or interventions through the juvenile justice system. The second group of offenders tends to be pedophilic and offend on younger children. They lack social competence, are more socially isolated, and may begin offending on others at a young age. This group uses coercion and manipulation to gain victim compliance during sexual offenses. The third group is comprised of offenders who commit a variety of sexual assaults on victims of various ages. These offenders are more likely to come from dysfunctional and abusive family backgrounds and the aggressive form of their offending may be due to an attempt to control and express feelings of rage, distress, and victimization. The fourth group of offenders commits offenses due to their paraphiliac arousal pattern. They have developed specific deviant sexual interests and their sexual offending has become reinforcing through continued fantasy and masturbation. Treatment for this group is difficult. These categories are based on trends in the literature and have not been subjected to controlled research to determine their validity.

Empirically-Derived Multidimensional Classification Systems

Smith, Monastersky, and Deisher (1987) were the first to develop personality-based categories of juvenile sex offenders. Based on data from 262 outpatient adolescent male sex offenders aged 12 to 18 with a mean age of 15.3 (no *SD* reported), these researchers performed cluster analysis on four factor scores taken from the subject's Minnesota Multiphasic Personality Inventory (MMPI; Hathaway & McKinley, 1943) protocols. The aim of cluster analysis is to form meaningful groups, or clusters, of findings in which within-cluster similarity is maximized and between-cluster similarity is

minimized (Hair & Black, 2000). Clusters are created by calculating distances between each subject and then grouping subjects into homogeneous clusters from the computed distances. Several methods of calculating distances (e.g., squared Euclidean distance) and algorithms used to develop the clusters (e.g., Ward's method) exist. The final cluster solution is significantly impacted by both the method of calculating distance and the algorithm chosen, so researchers should examine several distance measures and algorithms before choosing a final solution (Hair & Black, 2000).

Using Ward's method for hierarchical fusing of cases into homogeneous clusters, Smith and colleagues (1987) found that 178 adolescents were successfully classified into four groups. The four-factor solution accounted for almost 80% of the common variance of the 13 clinical scales. Group I adolescents were timid, emotionally overcontrolled, prone to rumination, and isolated from peers. Group II adolescents were considered to have the most disturbed profile and were characterized as being narcissistic, demanding, argumentative, and insecure. Adolescents in Group III were described as outgoing, honest, and inclined to exhibit emotional and at times, violent, outbursts. Group IV adolescents were considered to have abnormal-range profiles and were described as mistrustful, undersocialized, and likely to impulsively act-out. Adolescents from Groups I and III were believed to be in the normal range of personality functioning.

Further analyses demonstrated that group assignment was not related to victim-selection traits such as victim age or gender (Smith et al., 1987). Also, little difference between groups with regard to index offense characteristics, clinical presentation, and aspects of offender history were found. No additional information about these variables was presented and no further analyses of these personality-based subgroups was

conducted, as there was no relationship between victim-selection variables (Worling, 2001). Further limiting study findings was that the "Fake good" and "Fake bad" MMPI protocols were included in the analyses and that 84 subjects were not classified. Plus, the MMPI is an adult measure of personality and may underestimate psychopathology in adolescents (Smith et al., 1987).

Another limitation of the Smith and colleagues (1987) study is lack of generalizability to incarcerated juvenile sex offenders since the population examined was largely an outpatient sample, which suggests that a less aggressive sample of juvenile sex offenders was represented in the study. Further, personality characteristics evaluated by the MMPI may not be related to clinical presentation or history of sexual offending behavior (Smith et al., 1987). The findings of cluster-derived subtypes are only as meaningful and useful as the measures and variables used to form them. A final limitation is that only one type of distance measure and algorithm was used to form the groups, when it is recommended that several distance measures and algorithms be evaluated before forming a final set of clusters (Hair & Black, 2000). Despite these limitations, the findings of Smith et al. (1987) suggest that a simple dichotomy such as rapist versus child molester is too simplistic to describe the psychological heterogeneity of juvenile sex offenders and that more comprehensive categories should be investigated.

Another taxonomy of juvenile sex offenders was created by cluster analysis of factor-derived scores from the California Psychological Inventory (CPI; Gough, 1987) completed by 112 adolescent male sex offenders aged 12 to 19 with a mean age of 15.59 (*SD*=1.46) (Worling, 2001). The CPI is a personality test for individuals aged 12 and older that assesses 20 variables connected with interpersonal (occurring between persons)

and intrapersonal (occurring within an individual's mind) functioning. Adequate levels of internal consistency, test-retest reliability, and factorial and concurrent validity are reported in the test manual (Gough, 1987).

After excluding 15 invalid protocols, 4 personality-based groups were identified, accounting for 75% of the total variance: Antisocial/Impulsive, Unusual/Isolated, Overcontrolled/Reserved, and Confident/Aggressive. The 4 factor scores were evaluated by 3 cluster analysis procedures (Ward's method using squared Euclidean distances, Within-groups linkages using squared Euclidean distances, and Between-groups linkages using cosine of vectors values). Discriminant analysis showed that the between-groups-cosine procedure was superior to the other procedures so the 4 groups were subsequently based on that form of cluster analysis.

Juveniles in the Antisocial/Impulsive category make up the largest group and have similar traits with juveniles who commit non-sexual delinquent offenses. Common characteristics are poor academic achievement, aggressive, manipulates others, family disruption, and relationships with antisocial peers. They tend to have histories of physical and/or emotional abuse. Early substance use and abuse is common. Sexual offenses appear to be but another method of manipulating and exploiting others. Offenses tend to be aggressive and against older victims. Large amounts of psychopathology, especially externalizing behavior difficulties, high sexual and nonsexual recidivism rates are common. Such antisocial types may offend against others because they are typically exploitative, manipulative, and impulsive.

Adolescents in the Unusual/Isolated group are characterized as bizarre, interpersonally disengaged and isolated, and bewildered. They exhibit high amounts of

psychopathology, namely internalizing behavior problems. Similar to the Antisocial/Impulsive group, they have high sexual and nonsexual recidivism rates compared to the last two groups. They have problems maintaining healthy age-appropriate romantic relationships. They may offend due to their troubled interpersonal and cognitive limitations.

The Overcontrolled/Reserved group of juveniles evidences less psychopathology than the previous two groups. They do not exhibit the levels of delinquency found in the Antisocial/Impulsive group or the odd and strange behaviors and thoughts of the Unusual/Isolated group. Juveniles in this group report appropriate interpersonal attitudes but have deficits in emotional expression. This group may offend as a result of timidity around same-age peers. Recidivism rates are predicted to be low for this group.

Juveniles in the Confident/Aggressive group evidence lower levels of psychopathology compared to the first two groups. They appear friendly, confident, and sociable, although they also seem narcissistic. Their offenses may be a result of selfishness and lack of empathy for others. It is predicted they also have low recidivism rates.

Worling (2001) discussed the similarities between these results and those in the Smith et al. (1987) cluster-derived groups. In both studies, two seemingly healthy personality-based groups were found: one group of emotionally-overcontrolled and socially isolated juveniles (Smith et al.'s Group I and Worling's Overcontrolled/Reserved Group) and one group of truthful and extroverted juveniles who are inclined to react aggressively toward others (Smith et al.'s Group III and Worling's Confident/Aggressive Group). Both studies also found two more disturbed groups: one group of antisocial and

impulsive juveniles (Smith et al.'s Group IV and Worling's Antisocial/Impulsive Group) and one group of insecure juveniles with emotional problems (Smith et al.'s Group II and Worling's Unusual/Isolated group). In both investigations neither victim age nor victim gender was significantly associated with group classification. Worling (2001) hypothesized different etiologies and treatment needs for the combined four-group typology.

Limitations of Worling's (2001) study include lack of generalizability due to the use of cluster analytic techniques which are dependent on the distance measure used, algorithms chosen to form clusters, and variables used in the analyses, small group sizes, and the inability to classify some offenders in the cluster analysis. This taxonomy also fails to capture the level of deviant sexual interest, as a juvenile in any of the four categories could evidence deviant sexual thoughts and arousal (Witt et al., 2002). However, the similarity of the findings from the Smith et al. (1987) and Worling (2001) studies is impressive, as the investigations were conducted in different decades, different countries, and used different measures of personality (Worling, 2001). Moreover, while the findings of these studies suggest that four groups of juvenile sex offenders based on broad personality measures tend to emerge, more replications are needed.

In a recent study by researchers in New Zealand, cluster analysis of the Millon Adolescent Clinical Inventory (MACI), a personality measure of adolescents, was conducted in a typology study of a sample of 25 male juvenile ages 13 to 17 (M = 15.4, no SD reported) receiving community-based sex offender treatment (Oxnam & Vess, 2006). Based on a hierarchical cluster analysis (Ward's method) of the 12 personality pattern scales, a 3-group cluster solution was chosen. Eleven juveniles comprised the

antisocial/externalizing group, 7 were in the withdrawn, socially inadequate group, and 7 were in the group showing few clinically significant scale elevations. Clusters were validated by comparisons on the expressed concerns and clinical syndromes scales of the MACI. Adolescents in the "Antisocial" group had a tendency to be aggressive and unpredictable. They were viewed as unemotional and did not appear to have or desire to have close relationships with others. In addition, they appeared to evidence a propensity toward substance abuse. Juveniles in the "Inadequate" group were described as internalizing difficulties and suffering from significant psychopathology. They were also described as irritable, negative, and self-debasing. This group was more likely to have a history of abuse than the other two groups formed. Adolescents in the "Normal-range" group did not have significant elevations on any of the scales although they were described as anxious and conforming. They had higher elevations on the Sexual Discomfort scale, suggesting they may be confused and uncomfortable with sexual maturation.

While limitations of this study exist (limited generalizability due to small sample size, no information about offending behaviors and victim) (Oxnam & Vess, 2006), it provides initial information on using cluster analytic techniques to form a typology of juvenile sex offenders with the MACI. The present investigation will contribute to the literature on typology development of juvenile sex offenders by using the MACI, a widely accepted measure of personality and psychopathology, to form clusters with a large sample of adjudicated juvenile sex offenders. In addition, various data (interview, self-report measures, record review, etc.) were collected on information deemed

important in juveniles and in juvenile sex offending and were used to validate the clusters formed in the present study.

Study Measures

A large number of variables will be examined in the proposed investigation in order to include information that is deemed important in the juvenile sex offender literature. For instance, research shows that juvenile sex offenders differ with respect to victim and offense characteristics (Bourke & Donohue, 1996; Knight & Prentky, 1993). Research also suggests that juveniles vary according to the nature of offending behaviors, family environment, and child maltreatment histories (Knight & Prentky, 1993; Weinrott, 1996). Many variables from the pre-treatment clinical interview used in the present study are frequently examined in the literature and will be included in the validation of the cluster solution. These variables include demographic information, victim and offense characteristics, history of physical/sexual abuse and neglect, number of incarcerations, and number of adjudicated offenses and criminal arrests. Therefore, including these variables in the analyses allows for a greater specificity in forming types of juvenile sex offenders. The Inventory of Parent and Peer Attachment (IPPA; Armsden & Greenberg, 1987) examines adolescent attachment styles, which may answer questions about differences in attachment for juvenile sex offenders, so it was used in the current study.

Many personality traits of juvenile sex offenders have been identified, although few studies have classified juveniles according to these characteristics. The few studies that have examined personality traits have found many similarities and differences (e.g., Hunter, Figueredo, Malamuth, & Becker, 2003; Smith, Monastersky, & Deisher, 1987;

Worling, 2001), but more research is needed to understand how personality characteristics are related to sex-offending behavior. In the present investigation, the Millon Adolescent Clinical Inventory (MACI; Millon, 1993) served as a comprehensive measure of personality. The MACI has sound psychometric properties (Hart, 1993; Hiatt & Cornell, 1999; Millon, 1993; Millon, Green, & Meagher, 1982) but more empirical investigations of the validity and reliability of this measure in the juvenile justice settings are needed. Thus, the present investigation may provide valuable information about the validity of the MACI with juvenile sex offenders in addition to adding important personality dimensions to the cluster analysis.

Numerous studies have found that juvenile sex offenders frequently engage in a variety of antisocial behaviors (Fehrenbach, Smith, Monastersky, & Deisher, 1986; Righthand, Welch, Carpenter, Young, & Scoular, 2001; Ryan, Miyoshi, Metzner, Krugman, & Fryer, 1996). Further, research consensus demonstrates that nonsexual offenses occur at a very high rate for juveniles with a history of committing sexual offenses (Efta-Breitbach & Freeman, 2004). For instance, based on periods of up to 10 years, nonsexual recidivism rates have ranged from 34.8% to 90% (Becker & Hunter, 1997; Hagan & Gust-Brey, 1999; Kahn & Chambers, 1991; Langstrom & Grann, 2000; Smith & Monastersky, 1986), which indicates that examining criminal and antisocial behavior is an important aspect of understanding the juvenile sex offender population. The Hare Psychopathy Checklist-Revised (PCL:YV; Forth, Kosson, & Hare, 2003) is an empirically valid and reliable measure of psychopathy in adolescents (Catchpole & Gretton, 2003; Forth, Hart, & Hare, 1990; O'Neill, Lidz, & Heilbrun, 2003; Skeem & Cauffman, 2003) and was used in this investigation in order to capitalize on the

importance of this construct with the juvenile sex offender population. Two versions of the Substance Abuse Subtle Screening Inventory (SASSI; Miller, 1994 and SASSI-A2; Miller, Renn, & Lazowski, 2001) were examined in the current study in order to identify a group or groups of juvenile sex offenders at risk for substance abuse and dependence, as substance abuse is associated with criminality in youth.

It is expected that levels of denial will provide helpful information in the typology development of juvenile sex offenders since confronting denial is commonly used in treatment of sex offenders (e.g., Becker & Murphy, 1998; Lambie & McCarthy, 2004). Thus, the level of denial as shown on the validity and accountability scales of the Multiphasic Sex Inventory (MSI; Nichols & Molinder, 1984; 2001) was included in the analyses of the proposed investigation. The MSI has adequate psychometric properties (Nichols and Molinder, 1984; 2001; Simkins et al., 1989) and is able to determine who is denying level of sexual deviancy (Clark & Greer, 1995; Kalmus & Beech, 2004).

Sexual recidivism risk is an important issue in the juvenile sex offender literature. Juvenile sex offender recidivism research suggests that the overall recidivism rate for treated juvenile offenders is between 7 to 13% when follow-up periods of 2 to 5 years are observed (Hunter, 2000). Based on 25 studies examining juvenile sex offender recidivism rates for sexual reoffenses, with recidivism defined as new arrests or convictions, the mean recidivism rate was 9% and juvenile sex offenders were more than six times as likely to receive new charges for nonsexual crimes (Caldwell, 2002). Some validity and reliability has been reported for the Juvenile Sex Offender Assessment Protocol (J-SOAP) (Hecker, Scoular, Righthand, & Nangle, 2002; Prentky et al., 2000; Righthand et al., 2005). Because this measure assesses risk factors related to juvenile

sexual and criminal reoffending it was used in the present investigation to examine whether this information is important in cluster formation. A questionnaire completed by treatment providers at the completion of treatment was used in analyses of the present study to provide more information about response to treatment and predicted levels of risk.

Specific Aims

The value of forming relatively homogeneous subgroups from the heterogeneous population of juvenile sex offenders allows for a better understanding of etiology, course in treatment, prognosis, and recidivism. Moreover, the most promising classification systems have been based on cluster analysis from personality testing (Oxnam & Vess, 2006; Smith et al., 1987; Worling, 2001), thus, cluster-analytic procedures with personality testing appear to have the most potential in new research. In addition, including variables deemed important in the lives of juvenile sex offenders to increase the specificity of obtained clusters would seem to be useful. Thus, in the current study, clusters were formed using a standardized measure of personality. These clusters were validated with a variety of data including sexual offending behaviors, offense and victim characteristics, personality functioning, psychopathology, psychopathic traits, offense denial, attachment styles, and substance abuse. In sum, the overall goal of the present investigation was to use a variety of variables to validate an empirically-derived typology of juvenile sex offenders.

Hypotheses

Based on the research on juvenile sex offenders and typology formation, the following hypotheses are offered:

1. A meaningful typology of juvenile sex offenders comprised of four to eight clusters will be formed with the MACI using cluster-analytic techniques. The 7 Clinical Scales, 12 Personality Pattern scales, and 8 Expressed Concerns scales of the MACI will be used.
2. The analyses will be replicated when the juvenile sex offender sample is randomly split into two groups and analyzed separately. Specifically, the same scales will be elevated across the two cluster groups.
3. Various measures will validate the clusters by showing significant differences across the clusters formed. These measures include: clinical interview variables; the PCL:YV; the J-SOAP and J-SOAP II; a Global Trauma Score; an Internalizing Variable Group; an Externalizing Variable Group; the MSI; the IPPA; the SASSI and SASSI-A2; and the Caseworker/Therapist Feedback Form. Specifically,
    a. Clinical interview variables regarding sex offending and victimization will be significantly different across clusters formed by the cluster solution as examined by one-way ANOVA and chi-square analyses.
    b. The HARE PCL:YV Total Score, HARE Factor 1 Score (Selfish, Callous, and Remorseless Use of Others), and HARE Factor 2 Score (Chronically Unstable and Antisocial Lifestyle) will be significantly different across the cluster groups as examined by one-way ANOVA.
    c. The J-SOAP and J-SOAP II pre-treatment Factor 1 Score (Sexual Drive/Sexual Preoccupation) and Factor 2 Score (Impulsive, Antisocial Behavior), post-treatment Factor 3 Score (Clinical Intervention) and

Factor 4 Score (Community Stability) will be significantly different across clusters with one-way ANOVA. A dynamic risk change score will be formed by subtracting pre and post-treatment Dynamic Factor Scores (summation of Factors 3 (Clinical Intervention) and 4 (Community Stability)) and it will show significant differences across the clusters using a one-way ANOVA.

d. A Global Trauma Score will be devised by dividing juvenile sex offenders into three groups according to their experiences of various forms of stress/trauma/victimization (none, 1 to 3 incidents, and 4 to 7 incidents). This score will be significantly different across clusters formed using chi square analysis.

e. Factor analysis on various measures of internalizing symptoms (JI Withdrawal-Depression Scale, JI Social Anxiety Scale, KSADS Depressive Disorder Current, KSADS Overanxious/Generalized Anxiety Disorder Current, KSADS Obsessive-Compulsive Disorder Current, RADS Total Score) will be performed to create an Internalizing Variable Group. The factor score from the Internalizing Variable Group will be significantly different across cluster groups using one-way ANOVA.

f. Factor analysis on various measures of externalizing symptoms (JI Manifest Aggression Scale, HARE Poor Anger Control, HARE Impulsivity, KSADS ADHD Current, KSADS ODD Current, KSADS CD Current) will be performed to create an Externalizing Variable Group.

The factor score from the Externalizing Variable Group will be significantly different across cluster groups using one-way ANOVA.

g. All scales on the MSI will be significantly different across clusters formed using one-way ANOVA.

h. The IPPA parent (Parent Trust Total, Parent Communication Total, Parent Alienation Total) and peer (Peer Trust Total, Peer Communication Total, Peer Alienation Total) subscales will be significantly different across cluster groups using one-way ANOVA.

i. The SASSI and SASSI-A2 Face Valid Alcohol and Face Valid Other Drug Use scales will show significant differences across clusters using one-way ANOVA.

j. All 12 questions from the Caseworker/Therapist Feedback Form will show significant differences across the clusters formed using one-way ANOVA.

METHOD

Participants

The participants in this investigation were 473 male juveniles adjudicated delinquent for a sexual offense and serving time in an Alabama Department of Youth Services (DYS) facility. Of those 473 participants, only 440 (93%) had valid Millon Adolescent Clinical Inventory (MACI) scores. Reasons for the missing MACI scores were that 22 youth were too young (12 or younger) (66.7%), 4 youth did not completed any self-report measures (12.1%), 4 youth had invalid MACI scores (12.1%), 2 of the youth's files could not be found to examine the MACI (6.1%), and 1 self-report measure was given but the MACI was not completed (3%). Invalid MACI scores were based on the computer scoring profile invalidity rules. Profiles are invalid when any of the following conditions is met: (1) gender is not indicated, (2) age is less than 13 or greater than 19, (3) 10 or more items are missing or are double-marked, (4) the Reliability scale equals 2, (5) the raw score on the Disclosure scale is <201 or >589, or (6) all of the personality scales except the Borderline Tendency scale have a base rate of 59 or below. Given that the MACI is an essential measure in this study, only the participants with valid MACI scores were included in study analyses.

Study participants included 440 male youth with an average age of 15.85 (range = 13.08 to 19.17, *SD* = 1.41). The majority of youth were Caucasian (54.1%) and African American (43%), while 0.7% were Hispanic, 1.8% were Biracial, and 0.5% were

described as "Other." With regard to grade distribution, 2.7% of subjects were in grades 5 through 6, 65.4% were in grades 7 through 9, 29.3% were in grades 10 through 12, and 1.8% had received their GED or had graduated from high school. Grade data were missing for 0.7% of subjects. Intelligence testing was conducted with 345 subjects. Of those, 21.6% were administered the WISC, 10.9% were administered the WAIS, and 45.9% were administered the WASI. Intelligence scores were in the below average range, with an average Full Scale IQ score of 84.3 (range = 45-119, *SD* = 14.29), an average Verbal IQ score of 83.03 (range = 50-124, *SD* = 14.27), and an average Performance IQ score of 88.30 (range = 16-129, *SD* = 15.59). In examining family of origin information, 54.5% of the juveniles reported their biological parents were married to each other at one time and 41.4% reported their biological parents were never married to each other. Of the youth whose biological parents were reportedly married, 38% reported their biological parents were currently divorced. Prior to incarceration, 10.5% of juveniles lived with both biological parents, 37.5% lived with only one biological parent, 28% were living with a biological parent and a step-parent, 3.9% were living with adoptive parents, 10% were living with grandparents, 6.6% were living with other relatives, 1.4% were living with other non-relatives, and 2.3% were reportedly living with "other." Problems in the school setting were found in a majority of juveniles, as 72.7% had repeated a grade in school, 54.8% reported involvement in special education services, and 88.9% had one or more suspensions from school. With regard to peer relationships, 63.9% reported one or more physical altercations in the previous year (*M* = 8.49, range = 0 to 350, *SD* = 31.06).

A history of abuse was common in this sample of juvenile sex offenders, as 31.4% reported being a victim of sexual abuse, 37.5% reported being a victim of physical abuse, and 15.5% reported being a victim of neglect. With regard to psychological/psychiatric history, a majority of subjects reported having a history of psychological/psychiatric treatment (65.9%), 25.7% reported at least one inpatient psychiatric hospitalization, 55.9% reported taking psychotropic medication in the past, and 24.3% reported currently taking psychotropic medications. For 58% of the subjects, the current incarceration was their first and for 36.1% of subjects, the present incarceration offense was their first arrest.

Measures

Comprehensive Clinical Interview. The comprehensive pre-treatment clinical interview is a semi-structured protocol which collects information regarding the behavioral functioning and environmental milieu of juveniles with adjudicated sex offenses. Specifically, the following information is gathered: relevant demographic variables, family history and adjustment issues, health-related issues, alcohol and substance use, educational and vocational history, abuse and trauma history, current stressors, in depth history of criminal activity and charges, history of psychological and psychiatric issues and treatments, and history of sexual offending behaviors. The information obtained from this clinical interview allows the clinician to score two rating scales in the assessment protocol. For the proposed study the following sex offending variables were included in the analyses: offender and victim age for the index offense and any other sexual offenses, total number of sexual offenses and victims, gender of the victim or victims, intrusiveness of the sexual contact (e.g., fondling, penetration, oral sex,

or a combination of these behaviors), committing offense category, relationship of the offender to the victim, and whether restraints were used to commit the offense. Other variables of interest included in the analyses were information about the juvenile's history of abuse, neglect, and trauma. Specifically, the following variables were included for both sexual and physical abuse: whether or not the juvenile was sexually and/or physically abused, age of first incidence of sexual and/or physical abuse, and relationship to the perpetrator. Number of admitted sexual offenses and number of victims were also included in the analyses of the present study.

A Global Trauma Score was created by calculating the number of traumatic experiences reported by the juveniles. Sexual and physical abuse history, neglect history, traumatic experience history, and stressors were added if present to develop the total number. Juveniles were then divided into three groups based on those scores (no stress/trauma/victimization, 1 to 3 incidents of stress/trauma/victimization, and 4 to 7 incidents of stress/trauma/victimization).

Schedule for Affective Disorders and Schizophrenia for School-Age Children-Present and Lifetime Version (K-SADS-PL). The Schedule for Affective Disorders and Schizophrenia for School-Age Children-Present and Lifetime Version (K-SADS-PL; Kaufman, Birmaher, Brent, Rao, et al., 1997) is a diagnostic screening interview assessing current and past major symptoms of *DSM-IV* mental disorders in children and adolescents. There are many versions of the K-SADS, but the K-SADS-PL is deemed an improvement over previous versions. Interrater reliability is excellent (99.7%) and interrater agreement regarding diagnosis was high. Test-retest reliability for diagnoses is in the excellent to good range for most current and lifetime diagnostic assignments, and

reliability k coefficients were in the excellent range for most disorders (current and lifetime diagnoses of major depressive disorder, any depression, depressive disorder NOS, any bipolar disorder, generalized anxiety disorder, any anxiety, conduct disorder, and oppositional defiant disorder). Reliability k coefficients were in the good range for current diagnoses of PTSD and ADHD (Kaufman et al, 1997). For purposes of this study, significant symptom presence for each diagnostic category was scored as 1 and minimal or absence of symptoms was scored as 0. Only present scores on the depression, generalized anxiety disorder, obsessive-compulsive disorder, ADHD, oppositional defiant disorder, and conduct disorder scores were utilized to develop internalizing and externalizing symptoms factor scores.

Rating Scales

Hare Psychopathy Checklist: Youth Version. The Hare Psychopathy Checklist: Youth Version (PCL:YV; Forth, Kosson, & Hare, 2003) is a 20-item structured clinical rating scale with each item scored from 2 (the item "definitely applies") to 0 (the item "definitely does not apply") designed to evaluate psychopathic characteristics and behaviors in 12 to 18-year-old male and female adolescents. Youth who develop a pattern of psychopathy tend to have a higher likelihood of engaging in criminal behavior, developing severe interpersonal problems, and having reduced occupational and social functioning in adulthood (Hare, 2003). The PCL:YV was adapted from the Hare Psychopathy Checklist-Revised (PCL-R; Hare, 2003), which is deemed the most valid and reliable measure of adult psychopathy (Fulero, 1995). It examines past and current functioning in interpersonal, affective, and behavioral dimensions, which are believed to be essential to the construct of psychopathy (Forth, 2005). Information is gathered from

multiple sources including a semi-structured interview with the adolescent, a review of records, and collateral information. The total score may range from 0 to 40. While the PCL:YV total score provides a measure of the number and severity of psychopathic traits there are no empirically validated categorical cutoff scores (Forth, 2005). Thus, the factor scores may provide more detailed information regarding an individual's psychopathic features. The first factor, the Selfish, Callous, and Remorseless Use of Others Factor, evaluates interpersonal and affective traits consistent with adult psychopathy (Hare, 2003). The second factor, the Chronically Unstable and Antisocial Lifestyle Factor, assesses the level of daily irresponsibility and impulsivity. For purposes of this study, the total score and factor scores were evaluated.

Psychometric data indicate that the PCL:YV reliably measures psychopathy in adolescents (Forth, Hart, & Hare, 1990). The PCL:YV demonstrates high interrater reliability (single-rater intraclass correlation of .90 to .96) (Forth, Kosson, & Hare, 2003), high internal consistency (Cronbach's alpha coefficients ranging from .85 to .94) (Forth et al., 2003; O'Neill, Lidz, & Heilbrun, 2003), high single-rater reliability (.90) (Catchpole & Gretton, 2003), and adequate test-retest reliability (intraclass correlation of .66 for the total score) (Skeem & Cauffman, 2003). This rating scale is a good predictor of recidivism in juvenile delinquents (Brandt, Kennedy, Patrick, & Curtin, 1997) and in juvenile sex offenders (Gretton, McBride, Hare, Shaughnessy, & Kumka, 2001).

Juvenile Sex Offender Assessment Protocol. The Juvenile Sex Offender Assessment Protocol (J-SOAP; Prentky, Harris, Frizzell, & Righthand, 2000) is a 26-item evaluator-completed checklist used to assess the risk factors associated with juvenile sexual and criminal reoffending. It was created for use with male juveniles ages 12

through 18. The J-SOAP has four scales: (1) Sexual Drive/Sexual Preoccupation, (2) Impulsive, Antisocial Behavior, (3) Clinical Intervention, and (4) Community Stability. Please see Table 1 for a list of the scale items. The first two scales examine static or historical risk and the second two scales examine dynamic risk. Items are rated from 0 to 2 to reflect the degree of presence or absence of information assessed in the item, with higher scores on Factors 1 (Sexual Drive/Sexual Preoccupation) and 2 (Impulsive, Antisocial Behavior) representing more dysfunction and with lower scores on Factors 3 (Clinical Intervention) and 4 (Community Stability) representing more dysfunction. Items are scored using multiple sources of information and scoring is based on detailed coding instructions and behavioral examples in order to increase precision and reliability. At this point, there is no empirically supported method of using cutoff scores or weighting items (Righthand et al., 2005) so the overall J-SOAP score was used in the present study. The static risk factors (scales 1 and 2) from pre-treatment protocol and the dynamic risk factors (scales 3 and 4) from post-treatment protocol were examined. In order to improve the J-SOAP, the J-SOAP I was revised into the J-SOAP II by its creators. Several items were modified and some new ones were created so the J-SOAP and J-SOAP II are not necessarily compatible. Table 2 lists the items on the J-SOAP II. For the present investigation, the same factors from the J-SOAP and the J-SOAP II were compared to the clusters separately. Future research should more thoroughly compare these measures to determine their compatibility and whether or not the scores are interchangeable.

The first study attempting to provide construction and validation of the J-SOAP found good to excellent reliability for all but one of the items (Caregiver Instability)

(Prentky et al., 2000). Subsequently, some changes were made to clarify and further explain the nature of the items on Scales 1 (Sexual Drive/Sexual Preoccupation) and 2 (Impulsive, Antisocial Behavior) and a slightly modified version of the J-SOAP was formed (Righthand et al., 2005). Research shows the J-SOAP scales have moderate to excellent internal consistency, adequate concurrent validity, and good discriminant validity (Righthand et al., 2005). One 10-year follow-up study found that the first scale of the J-SOAP significantly predicted sexual recidivism (ROC AUC = .79, $p < .05$; Hecker, Scoular, Righthand, & Nangle, 2002). However, due to the small sample sizes and small number of juvenile sex offenders who reoffend sexually, more research is needed to evaluate the J-SOAP's predictive validity (Righthand et al., 2005). Overall, there is reasonable support for validity and reliability of the J-SOAP.

Self-Report Measures

Inventory of Parent and Peer Attachment (IPPA). The Inventory of Parent and Peer Attachment (IPPA; Armsden & Greenberg, 1987) is a 53-item Likert scale that assesses adolescent perceptions of the positive and negative affective/cognitive relationship variables with caregivers and close friends. Amount of mutual trust, communication quality, and amount of anger and alienation are assessed with 28 parent items and 25 peer items. A total score and 3 subscales (Trust Total, Communication Total, Alienation Total) are formed for parents and peers separately. For this study, only the subscales were examined. Adequate internal consistency was reported for the IPPA with Cronbach's alpha coefficients of .72 to .91 for the subscales and for test-retest reliability, correlation coefficients of .93 for the parent total attachment score and .86 for the peer total attachment score were reported (Armsden & Greenberg, 1987).

Jesness Inventory. The Jesness Inventory (JI; Jesness, 2002) is a 155-item self-report measure that examines traits, attitudes, and perceptions consistent with criminal behavior. The JI has been revised several times since 1962 in an attempt to form a questionnaire that predicts future delinquency and antisocial behavior in adulthood. There are 10 personality scales and 9 subtype scales on the JI. Scores are also used to place adolescents into different subtypes of delinquency. Test-retest reliability of individual scales is acceptable to good and subtype reliability is described as adequate. A median test-retest correlation coefficient of .65 was found for subtype scale scores after one year (Jesness, 2002). Internal consistency of the personality scales ranged from adequate to very good although the Immaturity scale had low internal consistency as shown by the Cronbach alpha (Jesness, 2002). For the current study, the following personality scales were used to form both internalizing and externalizing symptoms factor scores: Withdrawal-Depression, Social Anxiety, and Manifest Aggression.

Millon Adolescent Clinical Inventory. The Millon Adolescent Clinical Inventory (MACI; Millon, 1993) is a 160-item true/false self-report measure that assesses a wide range of psychological problems and traits experienced by 13 to 18-year-old adolescents. The MACI consists of 31 scales: 3 Validity scales (Disclosure, Desirability, Debasement), a Reliability scale, 7 Clinical Syndromes scales (Eating Dysfunctions, Substance Abuse, Delinquency Predisposition, Impulsive Propensity, Anxious Feelings, Depressive Affect, Suicidal Tendency), 12 Personality Patterns scales (Introversive, Inhibited, Doleful, Submissive, Dramatizing, Egotistic, Unruly, Forceful, Conforming, Oppositional, Self-Demeaning, Borderline Tendencies), and 8 Expressed Concerns scales (Identity Diffusion, Self-Devaluation, Body Disapproval, Sexual Discomfort, Peer

Insecurity, Social Insensitivity, Family Discord, Childhood Abuse). Raw scores are converted to base rate scores from 0 to 115 for all scales. Base rate scores below 60 suggest no significant problems in the area measured, between 60 and 74 suggest little evidence of a trait if closer to 60 or some aspects of the trait if closer to 74, between 75 and 84 indicate clinically significant presence of the trait, and 85 to 115 suggests the characteristic is clinically prominent. Base rate scores rather than raw scores were used in the current study.

This measure has good internal consistency and test-retest reliability (Millon, 1993). Alpha coefficients range from .73 to .87 for the Validity scales, .74 to .90 for the Personality Patterns scales, .75 to .89 for the Clinical Syndromes scales, and .73 to .91 for the Expressed Concerns scales. Studies suggest that the MACI has promising concurrent and predictive validity in nonforensic samples (e.g., Hart, 1993; Hiatt & Cornell, 1999; Millon, 1993; Millon, Green, & Meagher, 1982). However, the MACI needs to be subjected to more empirical investigation in juvenile justice settings. The present study may provide much needed information regarding the validity of the MACI with juvenile sex offenders.

Multiphasic Sex Inventory. The Multiphasic Sex Inventory (MSI; Nichols & Molinder, 1984; 2001) is a 300-item true/false questionnaire developed to aid the comprehensive evaluation of psychosexual characteristics of juvenile sex offenders. The MSI is a common instrument used with sex offenders (Kalichman, Henderson, Shealy, & Dwyer, 1992) and is typically used in treatment prognosis and outcome research (Geer, Becker, Gray, & Krauss, 2001; Simkins, Ward, Bowman, & Rinck, 1989). The MSI contains 3 validity scales (Sexual Obsessions, Social Sexual Desirability, Lie), 2

accountability scales (Justifications, Cognitive Distortions and Immaturity), a treatment attitudes scale (Treatment Attitudes), 3 sexual deviance scales (Child Molest, Rape, Exhibitionism), 5 atypical sexual behavior scales (Fetish, Voyeurism, Obscene Call, Bondage and Discipline, and Sado-Masochism), 3 sexual dysfunctions scales (Physical Disabilities, Impotence, Sexual Inadequacy), a sexual knowledge scale (Sexual Knowledge and Beliefs), and a sexual history scale (Sexual History). This measure has good to excellent test-retest reliability, r=.89, over a three-week period (Nichols and Molinder, 1984; 2001) and r=.71 over a three-month period (Simkins et al., 1989). The MSI appears to discern which sex offenders are denying their level of sexual deviancy (Clark & Greer, 1995; Kalmus & Beech, 2004). Specifically, the Child Molest Scale scores were found to significantly increase as denial scores decrease (Simkins et al., 1989). In order to examine a range of sexual issues in juvenile sex offenders, all scales of the MSI were examined in the current investigation.

Reynolds Adolescent Depression Scale (RADS). The Reynolds Adolescent Depression Scale (RADS; Reynolds, 1987) is a 30-item self-report questionnaire scored on a 4-point Likert scale measuring depressive symptomatology in adolescents. A raw score of 77 indicates the youth reported significant symptoms of depression and should be further evaluated. Internal consistency reliability estimates were high, ranging from .91 to .94 and test-retest reliability was .80 at a 6-week follow-up, .79 at a 3-month follow-up, and .63 at a 1-year follow-up, which is expected given the fluctuating nature of depression (Reynolds, 1987). Additionally, content and criterion-related validity as well as clinical validity were reported to be strong (Reynolds, 1987). In the present

investigation, the total RADS score was used to form an internalizing symptoms factor score.

Substance Abuse Subtle Screening Inventory. The Substance Abuse Subtle Screening Inventory (SASSI; Miller, 1994) is an 81-item self-report measure designed to assess adolescent substance abuse while taking defensiveness into account (Rogers, Cashel, Johansen, et al., 1997) and the Substance Abuse Subtle Screening Inventory: Second Edition (SASSI-A2; Miller, Renn, & Lazowski, 2001) is a 100-item self-report measure that assesses signs and symptoms found with substance abuse and dependence with 12 subscales. The SASSI-A2 is an improved version of the SASSI. While no test-retest reliability or alpha coefficients were listed in the manual, a 94% overall accuracy rate, 95% sensitivity rate, 89% specificity, 98% positive predictive power, 11% false positive and 5% false negative rate was reported in a group of adolescents receiving substance abuse treatment and in juvenile delinquent populations (Miller, Renn, & Lazowski, 2001). For the current study, the Face Valid Alcohol and Face Valid Other Drug Use scores of both the SASSI and SASSI-A2 were used.

Other Measures

Caseworker/Therapist Feedback Form. The Caseworker/Therapist Feedback Form consists of 12 questions rated on a 5-point Likert scale (1 = poor, 2 = below average, 3 = average, 4 = above average, 5 = excellent) regarding the rater's perception of youth response to various aspects of sex offender treatment and reoffense risk. This form was completed by one to two treatment providers at the post-treatment assessment and all 12 responses were examined in the present study.

Procedure

Data for the proposed investigation were gathered for a state-funded research program (The Accountability Based Juvenile Sexual Offender Assessment and Treatment Program-ABSOP) at the Mt. Meigs juvenile detention complex, a residential Department of Youths Services (DYS) facility in Alabama. A variety of individuals including licensed clinical psychologists and clinical psychology graduate students from Auburn University, licensed social workers and social work graduate students from the University of Alabama, and administrators and employees of the Alabama DYS contributed to the ongoing project. All study participants were adjudicated delinquent by an Alabama county court and committed to Mt. Meigs for varying sentence lengths.

As part of the ABSOP project, every adolescent adjudicated with a sexual offense and in DYS custody is required to complete a comprehensive pre-treatment assessment protocol. The protocol includes a broad clinical interview, a review of pertinent psychological, educational, and medical records, two rating scales (Hare Psychopathy Checklist: Youth Version PCL:YV; Juvenile Sex Offender Assessment Protocol J-SOAP), one diagnostic interview (Schedule for Affective Disorders and Schizophrenia for School-Age Children-Present and Lifetime Version KSADS), intelligence testing, an academic achievement test, an executive functioning evaluation, and nine self-report clinical measures (Adolescent Cognitions Scale ACS; Inventory of Parent and Peer Attachment IPPA; Jesness Inventory JI; Millon Adolescent Clinical Inventory MACI; Multiphasic Sex Inventory MSI; Parental Bonding Inventory PBI; Reynolds Adolescent Depression Scale RADS; Screen for Adolescent Violence Exposure SAVE; Substance Abuse Subtle Screening Inventory-Adolescent Version SASSI-A2). The interview and

instruments used were based on an extensive review of the empirical literature on juvenile sexual offender assessment and treatment. Because juvenile sexual offender literature is relatively new, the protocol has been updated and modified since the start of the program.

When the youth has completed the therapy program, caseworkers, group therapists, and individual therapists complete a Caseworker/Therapist Feedback Form based on their perceptions of the youth's strengths and weaknesses with regard to treatment. A post-treatment assessment protocol, including a review of relevant file information from the pre-treatment assessment, a comprehensive clinical interview and diagnostic interview (Schedule for Affective Disorders and Schizophrenia for School-Age Children-Present and Lifetime Version KSADS), a rating scale (dynamic variables of the Juvenile Sex Offender Assessment Protocol J-SOAP), two self-report clinical measures (Hypermasculinity Inventory HMI; Millon Adolescent Clinical Inventory MACI), and questions about treatment material and methods of handling high-risk situations, is given prior to release from the facility. For the purposes of the present investigation, dynamic variables of the J-SOAP and J-SOAP II and information on the Caseworker/Therapist Feedback Form were evaluated.

Each youth was provided with a detailed assent form and information about the pre-treatment assessment. The use of identification numbers to preserve confidentiality was described. Youths, also, were informed that at the completion of their sex offender treatment they would complete a post-treatment assessment. It was explained to each youth that he was free to withdraw from participation in the research or take a break at any time during the assessment process; however, the juveniles were told that completion

of the pre-treatment assessment was a required part of treatment. Prior to and during the assessment, youths were encouraged to respond honestly, and researchers were required to examine and question inconsistencies between the youth's report and detailed information derived from their legal file.

Interview and clinical data were obtained by advanced graduate students in clinical psychology while undergraduate research assistants administered self-report measures to youths on a different date. Due to the length of the assessment protocol, no youth completed an entire assessment in one day. Most subjects (68.3%, $N = 323$) completed the interview protocol before completing self-report measures. All graduate student researchers engaged in a comprehensive training session prior to working with the juvenile sex offenders. This session included advanced training in building rapport with juvenile delinquents, interviewing skills, and scoring/coding self-report measures, interview questions, and rating scales. When questions about the assessment arose, a licensed clinical psychologist with extensive experience in working with juvenile sex offenders was available. In addition, all graduate student researchers met weekly for at least one hour to discuss issues and resolve scoring/coding discrepancies. In the beginning of the training for all graduate research assistants an experienced clinician observed the new clinician while conducting the clinical and diagnostic interviews. The experienced and new clinician scored/coded the data independently and then met to resolve any scoring discrepancies. These calibration exercises were conducted until negligible discrepancies were found between their scores/codes as a method of ensuring data were gathered and scored reliably.

All undergraduate research assistants administering self-report measures received advanced training in building rapport with detained youth, identifying those with reading and/or learning difficulties that could reduce data accuracy, and helping those who did not understand the questions. Questionnaires were often read to the juveniles. The undergraduate researchers used computer scoring for some measures such as the Millon Adolescent Clinical Inventory (MACI; Millon, 1993). Other self-report measures were scored manually. The undergraduate researchers were instructed to double check their scoring before documenting youth test scores. Graduate assistants randomly checked the scoring to ensure scoring accuracy.

Prior to entering the data into the database, the graduate clinicians coded interview-based variables and test scores on a variable coding sheet. Random checks on the accuracy from the information in the interview and test protocols to the variable coding sheet to the database were conducted to guarantee reliability.

Cluster Analysis

Cluster analysis is a collection of multivariate techniques used to classify objects based on their characteristics from predetermined selection criteria (Hair & Black, 2000). The final clusters should display high homogeneity within clusters and high heterogeneity between the clusters. Other names for cluster analysis include "Q analysis," "typology," "classification analysis," and "numerical taxonomy" (Hair & Black, 2000). One of the reasons the name for cluster analysis differs is because different disciplines such as psychology, biology, sociology, and engineering use different names for the multivariate techniques. Despite the differing names across disciplines, the ultimate goal of all the methods is to classify according to natural relationships

(Aldenderfer & Blashfield, 1984; Anderberg, 1973; Bailey, 1994; Green & Carroll, 1978; Punj & Stewart, 1983; Sneath & Sokal, 1973).

Cluster analysis is helpful in several circumstances. It allows researchers to reduce data in an objective manner in order to obtain a more succinct, understandable description about specific subgroups with negligible loss of information (Hair & Black, 2000). Cluster analysis also enables researchers to develop hypotheses about the nature of the data or to evaluate proposed hypotheses.

While cluster analysis has many benefits, there are several caveats to its use (Hair & Black, 2000). This set of multivariate techniques is descriptive, atheoretical, and inconclusive. According to Hair and Black (2000), "cluster analysis has no statistical basis on which to draw statistical inferences from a sample to a population and is primarily used as an exploratory technique" (p. 149). Specifically, derived solutions depend on many elements of the procedure implemented and different solutions may be acquired by varying one or more elements. Further, clusters are always formed, regardless of the "true" existence of structure in the data (Hair & Black, 2000, p. 149). Finally, cluster solutions are completely dependent on the variables chosen for measuring similarity, with added or deleted variables having a large impact on the final cluster solution.

Before conducting cluster analysis, three questions must be addressed: how to measure similarity, how to form clusters, and how many groups to form. In order to answer these questions, a six-stage model-building approach was proposed and described by Hair and Black (2000). Stage one involves forming homogeneous groups and is conducted by any of the following objectives: taxonomy description, data simplification,

or relationship identification (Hair & Black). Taxonomic description is a traditional exploratory technique used to form a taxonomy or an empirically-based grouping of objects. It may also be used for confirmatory analyses when cluster analysis is derived from a hypothesized structure for a set of objects and then compared with a proposed typology or theoretically-based classification. Data simplification involves reducing data and then profiling general characteristics based on smaller groups. Relationship identification allows researchers to examine relationships among observations that may have been impossible when examining individual observations.

Variable selection may be based on an explicit theory, past research, or assumptions (Hair & Black, 2000). Because cluster analysis can be greatly influenced by the use of one or two unsuitable or undifferentiated variables; it is essential to include only variables that characterize items to be clustered and that relate to the goal of the cluster analysis (Milligan, 1980). All variables differed significantly across clusters in the current investigation so no variable was removed from the overall solution.

The second stage of the six-stage model-building approach involves the study design (Hair & Black, 2000). Specifically, the following should be addressed before forming clusters: the presence of irrelevant variables and outliers and deciding whether or not they should be deleted, how to measure object similarity, and deciding whether or not to standardize the data. Since outliers may alter the real structure of the data and cause derived clusters to misrepresent the data, screening for outliers was conducted in the prior to data analysis by evaluating MACI scale score means, ranges, and skewness. No significant outliers were found in the present study.

There are many measures of similarity. Interobject similarity is a measure of the similarity between objects that will be clustered (Hair & Black, 2000). The most common methods of measuring interobject similarity in cluster analysis are correlational measures, distance measures, and association measures. The correlational and distance measures require continuous (metric) data while the association measures are for categorical (nonmetric) data. In correlational measures, high correlations suggest similarity and low correlations suggest lack of similarity. Similarity is represented by the association of patterns across the characteristics rather than the magnitude of the values. Correlational measures are rarely implemented because most uses of cluster analysis examine the magnitude of relationships between objects. Since the magnitude of variable relationships is proposed to be an important aspect of clusters formed in the current study, correlational measures were not pursued.

The most commonly used measures of interobject similarity are called distance measures. Distance measures depict similarity as a closeness of observations to one another across variables in the cluster. Thus, distance measures examine dissimilarity, with larger values indicating less similarity and smaller values indicating greater similarity. The distance is changed to a measure of similarity by inverting the relationship. Several types of distance measures are used, with Euclidean distance being the most common. Euclidean distance may either be simple or squared. The squared Euclidean distance is the suggested distance measure for the centroid and Ward's methods of clustering.

The city-block approach is another type of distance measure. It involves replacing the squared differences by the sum of the absolute differences of the variables.

While this form of measuring distance is beneficial in some situations, it causes several difficulties (Shephard, 1966). For instance, one problem is the assumption that the variables are not correlated because if they are correlated, the clusters are invalid.

One problem encountered by all distance measures that utilize unstandardized data is that inconsistencies are found between clusters when the variable scales change. Thus, standardization should be used when possible. One Euclidean distance measure that incorporates a standardization procedure is the Mahalanobis distance. This approach conducts the standardization process on the data by scaling in standard deviations and by summing the pooled within-group variance-covariance, which adjusts for intercorrelations among the variables.

Since different distance measures or standardizing the data may lead to different cluster solutions, several distance measures should be implemented and the results should be compared to theoretical or established patterns. Thus, in the present investigation, both the simple and squared Euclidean distance measures were used.

Association measures are utilized to compare variables whose traits are measured only in categorical (nonmetric) terms (i.e., nominal or ordinal measurement). Since data from the present study contain both continuous and categorical data points, association measures of similarity were not used.

One important consideration is whether or not to standardize the data before calculating similarities. Most distance measures are susceptible to differing scales or magnitude among the variables and generally, variables with larger dispersions (i.e., larger standard deviations) have a greater impact on the final similarity values. The most common type of standardization is to convert all variables to standard scores (i.e., "z

scores"). Advantages of standardization are: (1) that it is easier to compare between variables because they are on the same scale and (2) that there is no difference in the standardized values when the scale is the only thing that changes. In sum, standardizing variables removes effects due to scale differences both across variables and for the same variable.

While there are many benefits of standardization, some limitations exist. For example, if some natural associations exist in the scaling of the variables or if groups are to be formed based on their response style to questionnaires, then standardization may not be suitable. In the current investigation, standardization was conducted prior to calculating similarities.

Stage three of the six-stage model-building approach involves evaluating assumptions (Hair & Black, 2000). One assumption is that the sample is truly representative of the population. Another assumption is that mutlicollinearity, or the use of variables containing the same information, is not substantial enough to impact the results. Both of these assumptions were made concerning data in the current study.

Stage four of the six-stage model-building approach involves deriving the clusters and examining the overall fit of the cluster solution (Hair & Black, 2000). While there are many algorithms for clustering objects, all algorithms should attempt to maximize the differences between clusters compared to the within-cluster variation. The most commonly used clustering algorithms fall into two categories: hierarchical and nonhierarchical.

Hierarchical cluster procedures involve developing a treelike-structured hierarchy. There are two main types of hierarchical clustering procedures: agglomerative and

divisive. With agglomerative methods, each object or variable begins as its own cluster and in subsequent steps the two closest clusters are combined into a new cluster, thereby reducing the amount of clusters in each step. One significant feature of the hierarchical method is that findings from an earlier step are always nested within the findings from a later step, which creates a treelike image. Divisive methods are the opposite of agglomerative methods in that one large cluster with all of the variables is split up and made into smaller clusters until all observations are individual clusters.

There are several types of agglomerative algorithms used to form clusters. The most commonly used are: (1) single linkage ("nearest-neighbor approach"), (2) complete linkage ("furthest-neighbor approach"), (3) average linkage, (4) Ward's method, and (5) centroid method. In the single linkage algorithm, minimum distance is used. The first cluster is formed by two objects separated by the shortest distance. The next-shortest distance is found and the third object is placed with either the first two objects to form a cluster or a new two-member cluster is found. This procedure is conducted until all objects are in one cluster. The major disadvantage of the single linkage method is that poorly delineated clusters may form long, snakelike chains with individuals at each end of the chain being very dissimilar. This creates a lack of homogeneity within clusters.

In the complete linkage method, the cluster criterion is based on the maximum distance between objects. This method allows all individuals in a cluster to be linked at some maximum distance or by minimum similarity and solves the snaking problem from the single linkage method. The average linkage method is initially the same as the single or complete linkage method but the cluster criterion is based on the average distance from all points in one cluster to all points in another. This approach tends to merge clusters

with very little within-cluster variation and is biased to create clusters with the same variance.

"In Ward's method, the distance between two clusters is the sum of squares between the two clusters summed over all variables. In each stage of the clustering procedure, the within-cluster sum of squares is minimized over all partitions (the complete set of disjoint or separate clusters) obtainable by combining two clusters from the previous stage" (Hair & Black, 2000, p. 180). This method tends to create clusters with a small number of individuals and clusters with similar numbers of observations.

In the centroid method, the distance between clusters is the distance between their centroids or the "mean values of the observations on the variables in the cluster variate" (Hair & Black, 2000, p. 180). This method is commonly used by biologists. While it may produce complicated results, it is less influenced by outliers compared to other hierarchical methods.

Nonhierarchical clustering procedures do not construct clusters in a treelike manner. They place objects into clusters after a certain number of clusters is identified. There are two types of nonhierarchical cluster analysis: Two-step and K-means. The Two-step method can help determine the appropriate number of clusters although final solutions are highly dependent on case order so cases must be randomized and re-run several times. With regard to K-means clustering, one of the following approaches is typically used to assign individual observations to one of the clusters: sequential threshold, parallel threshold, and optimization (Green, 1978, p. 428). The main disadvantage of all nonhierarchical clustering procedures is how to select the cluster seeds because it greatly influences the final results.

The sequential threshold method begins by selecting one cluster and including all observations within a prespecified distance. After all objects within that distance are included in the cluster, a second cluster seed is selected and all objects within the prespecified distance are included in it. A third cluster is selected and the procedure continues until all clusters are formed. When an observation is added to a cluster, it cannot be used in any other clusters. This method is appropriate for large data sets. However, one problem with this procedure is that the final cluster results depend on the observation order in the data set meaning that reordering the data will likely change the results.

With the parallel threshold method, several cluster seeds are initially selected and then observations within a threshold distance are added to clusters. As the procedure continues, threshold distances may be altered to include fewer or more observations in the clusters. In some methods, objects that are outside of the prespecified threshold distance may not be included in clusters.

The optimizing procedure is similar to the sequential and parallel threshold methods except it allows objects to be reassigned to cluster seeds. Thus, if an observation becomes closer to a cluster other than the one it was assigned to, it may be switched to a closer and more similar cluster.

There is not a definitive answer about choosing between hierarchical and nonhierarchical methods. While it may be argued that hierarchical procedures are advantageous because they take less computer time, the results may be misleading because unwanted early combinations may continue throughout the analysis and produce false results. Additionally, outliers have a large impact on results. In order to reduce the

possibility of these problems, it is important to cluster analyze the data multiple times and delete problem observations or outliers in each analysis. Hierarchical procedures are not the best methods to use with very large samples (i.e., ones with 400 or more cases) because the data storage requirements exceed the capacity of most computers (Hair & Black, 2000). Thus, in cases with large sample sizes, random samples of the original data may be used, although the overall representativeness of the findings will be suspect.

Use of nonhierarchical methods depends on the selection of cluster seed points based on a "practical, objective, or theoretical basis" (Hair & Black, 2000, p. 183). When seed points are specified (i.e., nonrandom) then nonhierarchical methods have more advantages than hierarchical methods. For instance, outliers, the distance measure used, and the addition of irrelevant or inappropriate variables have less influence on results.

One approach is to combine hierarchical and nonhierarchical techniques in order to take advantage of both (Milligan, 1980) so both techniques were used in the present study. Specifically, both hierarchical and nonhierarchical techniques were used to establish the number of clusters and hierarchical techniques were then used to develop the clusters.

An important consideration for cluster analysis is the stopping rule, which determines the number of clusters to be formed in the final solution. Similar to many aspects of cluster analysis, there is not an objective or standard method of determining the number of clusters. While many guidelines have been established, they involve complex procedures (Aldenderfer & Blashfield, 1984; Milligan & Cooper, 1985). One group of stopping rules involves examining some measure of similarity or distance between clusters at each step and defining cluster solutions when the measure exceeds a

specific value. Some empirical support exists for this approach (Milligan & Cooper, 1985). Another group of stopping rules uses some type of statistical rule or statistical test such as point-biserial/tau correlations or the likelihood ratio. Unfortunately, many of these procedures are too complex for the advantage they may provide over more simple stopping rules (Hair & Black, 2000).

Once an acceptable cluster analysis solution is chosen, the structure shown in the final solution should be examined for widely dissimilar clusters and clusters with very few objects in them. Clusters with few objects or single-member clusters should be evaluated to determine if they represent a valid component of the sample or if it should be removed from the solution as unrepresentative. After removing any observation, the cluster analysis should be re-run.

The fifth stage of the six-stage model-building approach involves interpretation of the clusters (Hair & Black, 2000). Each cluster should be evaluated in order to name or label the nature of the clusters. One method is to examine the cluster's centroid. Profiling and interpretation should allow one to assess the similarity between the final cluster solutions and the hypothesized solutions. The practical significance of the clusters should also be assessed in the interpretation stage.

In stage six of the six-stage model-building approach, clusters are validated and profiled (Hair & Black, 2000). There are several ways to ensure the validity of the final cluster solution. One way is to make certain that the final clusters are representative of the population and are stable over time. This may be determined by cluster analyzing separate samples and comparing the results or by randomly splitting the sample into two groups, analyzing results separately, and then comparing them. Validation may occur by

using cluster centers from one cluster solution to name clusters from the other cluster solution and then compare the results (McIntyre & Blashfield, 1980). Another way to validate is to use a direct form of cross-validation (Punj & Stewart, 1983). Finally, establishing a type of criterion or predictive validity based on theoretical or practical implications may be conducted to validate the clusters (Hair & Black, 2000). For the present study, the sample was randomly split into two groups and the mean scores on the MACI for each cluster was compared as a form of validation.

In profiling, the characteristics of clusters and how they differ from one another are described. Discriminant analyses or some other statistic testing for mean differences is typically utilized to profile the clusters once the final cluster solution is established. Data that were not used to define clusters may be used to help profile characteristics of clusters. In sum, profile analysis describes characteristics after the clusters are identified as opposed to traits that were used to directly define clusters. Profiling will be a critical component of this study, as it will be important to show some practical and useful distinctions associated with the clusters.

Analyses

For the cluster analysis, Hair and Black's (2000) six-stage model-building approach was followed. In the first stage, homogeneous groups were formed and variables that did not significantly differ across the cluster solution were removed from the clusters. In the second stage involving study design, outliers were examined and data were standardized. Object similarity was measured by using the simple and squared Euclidean distance measure. Assumptions that the sample was representative of the population and that multicollinearity was not interfering with the results was made in the

third stage. In the fourth stage clusters were formed and the overall fit of the cluster solution was evaluated. Both hierarchical and nonhierarchical clustering procedures were employed in this exploratory analysis in order to maximize advantages of each. Hierarchical and nonhierarchical techniques were used to form the number of clusters and both hierarchical techniques were used to create the clusters. Once a satisfactory cluster solution was chosen, it was assessed for dissimilarity between clusters. Clusters were interpreted, named, and described in the fifth stage. Practical clinical implications also were addressed. The cluster solutions were validated and profiled in the sixth stage. Specifically, validation was assessed by randomly splitting the sample into two groups, analyzing the results separately, and then comparing the two groups. Mean differences between clusters were examined in order to aid the profiling procedure.

In the current study, a 5-cluster solution of juvenile sex offenders using the personality and clinical scales of the Millon Adolescent Clinical Inventory (MACI) was formed using Ward's clustering method and squared Euclidean distance. A random sample of 50% of subjects was drawn and the cluster analysis was re-run in order to evaluate whether the clusters were replicable. In order to identify significant associations between cluster membership and a variety of variables shown in the literature to be important in juvenile sex offending, cluster validation was conducted by either one-way ANOVAs on continuous variables or chi-square analyses on categorical variables, with the cluster solution being the independent variable and all other variables being the dependent variables. Categorical and continuous dependent variables used in the present study are listed in Tables 4 and 5, respectively. Tukey post hoc *t* tests were used to find which variables were significantly different across the clusters.

The database used in this study was large and there were multiple measures for various symptomatology (for instance, depressive symptomatology were measured by the Reynolds Adolescent Depression Scale (RADS), the JI Withdrawal-Depression subscale, and the K-SADS depression scales) so it was important to determine which combination of measures examined specific symptoms of interest. In order to determine the best variables to include for groups of internalizing and externalizing symptoms, exploratory factor analysis using the Maximum Likelihood extraction method and the rule of eigenvalues greater than one for determining number of factors was conducted. In the initial group of internalizing symptoms, a two-factor solution was derived ($\chi^2(4) = 16.768$, $p = .002$). When examining correlations among the variables, the K-SADS Obsessive-Compulsive Disorder Current variable had the fewest number of significant correlations and of those that were significant, the correlations were relatively small (see Table 6). That variable was removed and the factor analysis was re-run, resulting in a one-factor solution ($\chi^2(5) = 24.629$, $p = .000$) accounting for 34.35% of the variance, with all variables significantly correlated to one another (see Table 7). Since only one factor was found for the internalizing symptoms group, no rotation was conducted. The final variables for the internalizing group were K-SADS Depressive Disorder Current (KSADSdep), K-SADS Overanxious/Generalized Anxiety Disorder Current (KSADSanx), JI Withdrawal-Depression (JIwithdep), JI Social Anxiety (JIsocanx), and Reynolds Total Depression Score (RADS). A one-factor solution of externalizing symptoms was found ($\chi^2(9) = 37.488$, $p = .000$), accounting for 43.24% of the variance, with all variables being significantly correlated (see Table 8). The following variables were used to form the externalizing group: HARE Poor Anger Control (HAREang),

HARE Impulsivity (HAREimp), K-SADS ADHD Current (KSADSadhd), K-SADS ODD Current (KSADSodd), K-SADS CD Current (KSADScd), and JI Manifest Aggression (JIagg). Tables 9 and 10 present the factor matrix for the internalizing and externalizing groups, respectively. Once the internalizing and externalizing groups were formed, cluster validation was conducted with one-way ANOVA and Tukey post hoc *t* tests.

RESULTS

The results are presented in order from Hypothesis 1 through Hypothesis 3. Analyses included cluster analysis, factor analysis, one-way analyses of variance (ANOVA), chi-square nonparametric tests, and Tukey post hoc *t* tests. The chosen cluster solution was the independent variable and the validation variables were the dependent variables.

Hypothesis 1: A meaningful typology of juvenile sex offenders comprised of four to eight clusters will be formed with the MACI using cluster-analytic techniques. The 7 Clinical Scales, 12 Personality Pattern scales, and 8 Expressed Concerns scales of the MACI will be used.

For the cluster analysis, nonhierarchical (two-step and K-means) cluster analysis was initially used to determine the appropriate number of clusters. With the two-step cluster analysis, Euclidean and Log-likelihood were used to measure distance and Akaike Information Criterion (AIC) and Bayesian Information Criterion (BIC) were used as the cluster criterion for up to 8 clusters. Four combinations of analyses were conducted: Euclidean AIC, Euclidean BIC, Log-likelihood AIC, and Log-likelihood BIC. Since the final solution of the two-step clustering procedure may depend on the order of cases, case order was randomized for each combination of cluster and distance method and the two-step cluster analysis procedure was re-run five times. Additionally, all scores were standardized into *z* scores as part of the cluster analysis. Smaller BIC and AIC values, a

relatively large ratio of BIC and AIC changes, and a large ratio of distance measures indicate the appropriate number of cluster solutions in the model. Based on these analyses and examination of the BIC and AIC numbers, ratio changes, and ratio of distance, a 3, 4, 5 or 7 cluster solution was indicated, with a majority of the analyses suggesting a 4-cluster solution. However, upon examination of mean MACI scores for clusters formed, it appeared that a 5-cluster solution was more consistent with the limited research conducted with juvenile sex offender typology development.

Next, K-means cluster analysis using simple Euclidean distance was conducted with 3 to 8 cluster solutions. With this form of cluster analysis, ANOVA tables are used to show which variables contribute the most to each cluster solution. Based on examination of MACI scores for clusters and number of individuals in each cluster, a 5-cluster solution was chosen and the 440 subjects were divided among a 5-group solution. Five groups were chosen based on theoretical and practical sense upon examination of the cluster groups formed and that each of the 5 subgroups had at least 10% of the total number of subjects.

Based on the two-step and K-means cluster analyses, a 5-cluster solution was chosen. Once the number of cluster solutions was chosen, hierarchical cluster analysis with a combination of 3 clustering methods (within groups linkage, Centroid, and Ward's method) and 2 distance measures (Euclidean and squared Euclidean) were utilized. All scores were standardized to *z* scores. MACI mean scores, overlap of MACI means scores across subgroups, and number of subjects in each subgroup was examined to determine which combination of clustering method and distance measure produced the most appropriate cluster solution. The 5-cluster solution using Ward's method and squared

Euclidean distance was deemed the most appropriate, as there was little overlap of significant MACI scores across groups, groups formed were consistent with the literature, and individual groups had at least 10% of subject total number.

Upon further examination of the cluster solutions formed with two-step, K-means, and hierarchical cluster analysis, the cluster solution using hierarchical cluster analysis (Ward's method, squared Euclidean distance) was chosen for analyses in the present study, as this solution seemed to demonstrate the most within cluster homogeneity and between cluster homogeneity. See Table 11 for mean MACI scale scores, standard deviations, and ANOVAs for the 5 groups using hierarchical cluster analysis. All groups had significantly different MACI scores.

Cluster 1 (Broadly Disturbed) contained 42 juveniles and is most characterized by depressive symptomatology and low self-esteem. The Depressive Affect and Self-Devaluation scales fell in the prominent trait range for juveniles in this group. Additionally, juveniles in this group displayed a wide range of psychopathology. Mean MACI scores were in the clinically significant range on the following scales: Introversive, Oppositional, Identity Diffusion, Peer Insecurity, Family Discord, Childhood Abuse, Substance Abuse Proneness, and Suicidal Tendency. Mean MACI scores demonstrated some of the trait on the following scales: Inhibited, Doleful, Unruly, Self-Demeaning, Borderline Tendency, Social Insensitivity, Body Disapproval, and Impulsive Propensity. Of the scales representing some of the trait, the Doleful and Impulsive Propensity scale scores were in the base rate range of 70 to 74, suggesting more presence of the trait within the 60 to 74 range defined as representing some of the trait.

Cluster 2 (Anxious/Submissive/Passive) contained 171 juveniles and is most characterized by symptoms of anxiety and many average range scores. The Anxious Feelings scale fell in the clinically significant range while the Submissive, Dramatizing, Conforming, and Sexual Discomfort scale scores demonstrated some of the trait. The Submissive scale fell in the 70 to 74 range suggesting this trait approaches clinical significance in this group.

Ninety-four juveniles were in Cluster 3 (Dysthymic/Shame-Based/Negative Self-Image). This cluster is characterized by depressive symptomatology and inhibition. The Depressive Affect and Inhibited scales fell in the clinically significant range. The following scales indicated these juveniles experience some of the traits: Introversive, Doleful, Submissive, Oppositional, Self-Demeaning, Self-Devaluation, Sexual Discomfort, Peer Insecurity, and Anxious Feelings. Of these scales, the Doleful, Self-Devaluation, and Anxious Feelings scales fall in the 70 to 74 range, which suggests these traits approach clinical significance in this group.

Cluster 4 (Narcissitic/Delinquent) contained 83 juveniles and is characterized by delinquency. The Delinquency Predisposition scale score fell in the clinical range. The following scale scores suggest some presence of the trait in this group: Dramatizing, Egotistic, Unruly, Social Insensitivity, and Family Discord. Of these scales, all but the Egotistic scale fall within the 70 to 74 range, which means these scale scores approach clinical significance.

Fifty juveniles were in Cluster 5 (Distressed/Delinquent). This cluster is characterized by impulsivity, unruly behavior, and depression. The following scale scores fell in the clinically significant range: Doleful, Unruly, Oppositional, Family

Discord, Delinquency Predisposition, Impulsive Propensity, and Depressive Affect. Other scales suggest some presence of the trait: Social Insensitivity, Introversive, Self-Demeaning, Borderline Tendency, Identity Diffusion, Self-Devaluation, and Substance Abuse Proneness. Of these scales, the Substance Abuse Proneness scale score fell within the 70 to 74 range, suggesting this trait approaches clinical significance in this cluster group.

To summarize, a meaningful typology comprised of 5 clusters using cluster-analytic procedures was formed, confirming the first hypothesis of this investigation. Further, these clusters evidenced both within- and between-cluster homogeneity and appear to be clinically meaningful.

Hypothesis 2: The analyses will be replicated when the juvenile sex offender sample is randomly split into two groups and analyzed separately.

A random sample of 50% of subjects was selected. As in the chosen cluster described under Hypothesis 1, a hierarchical cluster analysis using 5 clusters (Ward's method, squared Euclidean distance) was conducted. Examination of mean MACI scores across clusters was used to evaluate the compatibility of the full sample and randomly-split group clusters. Table 12 presents the mean MACI scale scores, standard deviations, and ANOVAs for the 5 groups using hierarchical cluster analysis.

Tables 13 to 17 present comparisons of the full sample cluster solution and half sample cluster solution. When comparing Cluster 1 of the full and half samples, the following scale scores fell within the same range of significance: Inhibited, Doleful, Unruly, Self-Demeaning, Borderline Tendency, Social Insensitivity, Oppositional, Family Discord, Substance Abuse Proneness, and Depressive Affect. The following

scales fell in the base rate score range of 60 or higher but degree of clinical significance differed across samples: Impulsive Propensity, Introversive, Identity Diffusion, Peer Insecurity, Childhood Abuse, Suicidal Tendency, and Self-Devaluation. Only one scale was significant in one sample but not the other: Body Disapproval. See Table 13 for Cluster 1 comparisons.

Cluster 2 for each sample contained 3 scales within the same level of significance: Dramatizing, Conforming, and Anxious Feelings. Both the Submissive and Sexual Discomfort scales were significant across samples but had different levels of significance. See Table 14 for Cluster 2 comparisons.

MACI scale scores were similar for Cluster 3 of the full sample and Cluster 4 of the half sample so they were compared. The following scales had the same level of significance across samples: Introversive, Doleful, Submissive, Oppositional, Self-Demeaning, Self-Devaluation, Sexual Discomfort, Peer Insecurity, and Depressive Affect. The Anxious Feelings and Inhibited scales were significant across samples but had different levels of significance. The Childhood Abuse scale fell in the range of having some of the trait for the half sample but was not in the significant range for the full sample. See Table 15 for the Cluster 3 and Cluster 4 comparisons.

Cluster 4 of the full sample and Cluster 3 of the half sample were compared due to the similar MACI scale scores. The Dramatizing and Egotistic scales demonstrated the same level of significance across both samples. The following scales were significant in each cluster but had different levels of significance: Unruly, Social Insensitivity, Family Discord, and Delinquency Predisposition. The Substance Abuse and Impulsive

Propensity scales were significant in the half sample but were not found to be significant in the full sample. See Table 16 for Cluster 4 and Cluster 3 comparisons.

The full and half sample Cluster 5 MACI scores were compared. The only scale that fell within the same range of clinical significance for this cluster was the Social Insensitivity scale. The Delinquency Predisposition scale contained different levels of significance across the samples. In the full sample, many scales were significant that were not significant in the half sample. These scales include Introversive, Self-Demeaning, Borderline Tendency, Identity Diffusion, Self-devaluation, Substance Abuse Proneness, Doleful, Unruly, Oppositional, Family Discord, Impulsive Propensity, and Depressive Affect. The only scale significant in the half sample but not significant in the full sample was the Anxious Feelings scale. See Table 17 for Cluster 5 comparisons. Overall it appears that four of the five clusters were relatively consistent across the full sample and half-sample, providing partial confirmation for the second hypothesis.

Hypothesis 3: Various measures will validate the clusters by showing significant differences across the clusters formed. These measures include: clinical interview variables; the HARE PCL:YV; the J-SOAP and J-SOAP II; a Global Trauma Score; an Internalizing Variable Group; an Externalizing Variable Group; the MSI; the IPPA; the SASSI and SASSI-A2; and the Caseworker/Therapist Feedback Form (all 8 questions).

> *Hypothesis 3a: Clinical interview variables regarding sex offending, psychological treatment, and victimization will be significantly different across clusters formed by the cluster solution as examined by one-way ANOVA and chi-square analyses.*

A comparison of the full sample five-cluster solution on categorical clinical interview variables was conducted using nonparametric chi-square analyses. The relationship between sexual abuse history on cluster membership was assessed by using a 2 (yes sexual abuse or no sexual abuse) by 5 (cluster membership) χ^2 analysis. Sexual abuse victimization history was associated with cluster membership, χ^2 (4, N = 440) = 20.72, p = .000. Overall, 31.4% of the sample reported a sexual abuse victimization history and 68.6% denied a sexual abuse victimization history. The proportion of juveniles with a sexual abuse victimization history was higher in Clusters 2 (P = .35) and 3 (P = .30) than in Clusters 1 (P = .14), 4 (P = .10), and 5 (P = .11). Of the juveniles with a sexual abuse victimization history, the relationship between relationship to perpetrator with cluster membership was assessed using a 4 (parent, sibling, family friend, or stranger) by 5 (cluster membership) χ^2 analysis. Parent included father, mother, stepfather, or stepmother and sibling included brother, sister, or step-sibling. This analysis revealed no significant relationships in the proportions of relationship to perpetrator across the 5 clusters, χ^2 (12, N = 103) = 9.61, p = .650.

The relationship between physical abuse history and cluster membership was examined by using a 2 (yes physical abuse or no physical abuse) by 5 (cluster membership) χ^2 analysis. No statistically significant group differences in the proportions of juveniles with and without a history of physical abuse victimization were found across the 5 clusters, χ^2 (4, N = 440) = 7.03, p = .134. Of the juveniles with a physical abuse victimization history, the association between relationship to perpetrator with cluster membership was assessed using a 5 (parent, sibling, other relative, family friend, or other) by 5 (cluster membership) χ^2 analysis. Parent included father, mother, stepfather,

or stepmother and sibling included brother, sister, or step-sibling. No significant group differences in the proportions of relationship to perpetrator were found across the 5 clusters, χ^2 (16, N = 163) = 18.42, p = .300.

The association between neglect history and cluster membership was examined using a 2 (yes neglect or no neglect) by 5 (cluster membership) χ^2 analysis. No statistically significant group differences in the proportions of juveniles with and without a history of neglect were found across the 5 clusters, χ^2 (4. N = 440) = 3.89, p = .422. The relationship between trauma history and cluster membership was assessed using a 2 (yes trauma or no trauma) by 5 (cluster membership) χ^2 analysis. No statistically significant group differences in the proportions of juveniles with and without a history of trauma were found across the 5 clusters, χ^2 (4, N = 440) = 5.19, p = .269. See Table 18 for a full description of chi-square analyses with the categorical variables regarding victimization.

Several chi-square analyses regarding psychological history were performed. The relationship between previous psychological treatment and cluster membership was examined using a 2 (yes treatment or no treatment) by 5 (cluster membership) χ^2 analysis. Previous psychological treatment was associated with cluster membership, χ^2 (4, N = 440) = 9.93, p = .042. Overall, 65.9% of the sample reported a history of previous psychological treatment and 34.1% reported no history of treatment. The proportion of juveniles with previous psychological treatment was as follows: Cluster 1 (P = .11), Cluster 2 (P = .34), Cluster 3 (P = .22), Cluster 4 (P = .19), and Cluster 5 (P = .13), indicating that juveniles in Cluster 2 were more likely to have a history of psychological treatment compared to juveniles in the other clusters. The relationship between ever

being prescribed psychotropic medication and cluster membership was evaluated with a 2 (yes medication ever or no medication ever) by 5 (cluster membership) χ^2 analysis. A history of taking psychotropic medication was related to cluster membership, χ^2 (4, N = 440) = 22.33, p = .000, with 55.9% of juveniles reporting a history and 44.1% of the sample denying a history of psychotropic medication use. The proportion of juveniles with a history of taking psychotropic medications was as follows: Cluster 1 (P = .13), Cluster 2 (P = .30), Cluster 3 (P = .22), Cluster 4 (P = .22), and Cluster 5 (P = .14), indicating that juveniles in Cluster 2 were more likely to have a history of taking psychotropic medications compared to juveniles in the other clusters. The relationship between current psychotropic medication use and cluster membership was examined using a 2 (yes medication or no medication) by 5 (cluster membership) χ^2 analysis. Current psychotropic medication use was associated with cluster membership, χ^2 (4, N = 440) = 21.90, p = .000. Overall, 24.3% of the juveniles were currently taking psychotropic medication. The proportion of juveniles currently taking psychotropic medications was higher in Clusters 2 (P = .22), 3 (P = .25), and 4 (P = .21) than juveniles in Clusters 1 (P = .18) and 5 (P = .14), indicating that juveniles in Cluster 2, 3, and 4 were more likely to be currently taking psychotropic medications compared to juveniles in the other clusters. Table 19 provides a summary of chi-square analyses with psychological variables.

Chi-square analyses were conducted with juvenile sex offending variables. Table 20 presents the summary of these variables. The relationship between juvenile sex offender/victim age ever in each juvenile's sex offending history and cluster membership was examined using a 3 (victim younger by 4 years or more, peer age or older victim, or

mixed pattern) by 5 (cluster membership) χ^2 analysis. Data were missing for 5 juveniles (1.1%) so they were removed from the analyses, leaving a total of 434 juveniles. Juvenile sex offender/victim age was not significantly associated with cluster membership, although the relationship approached significance, χ^2 (8, N = 434) = 15.09, p = .057. While not significant, it appears that juveniles in Cluster 2 had a higher proportion (P = .44) of victims younger by 4 years or more than juveniles in the other clusters. The proportion of juveniles with peer age or older victims was higher in Clusters 2 (P = .34) and 4 (P = .24) were than in the other clusters. Further, the proportion of juveniles with a mixed pattern of victim age was higher in Clusters 3 (P = .36) and 2 (P = .24) than in the other clusters. The relationship between victim gender ever in each juvenile's sex offending history and cluster membership was examined using a 3 (female only, male only, or mixed pattern) by 5 (cluster membership) χ^2 analysis. Data were missing for 6 juveniles (1.4%) so they were removed from the analyses, leaving a total of 433 juveniles. No statistically significant group differences in the proportions of victim gender ever were found across the 5 clusters, χ^2 (12, N = 433) = 11.39, p = .180.

The association between juvenile sex offender/victim age for the index offense and cluster membership was examined using a 2 (victim younger by 4 years or more or peer age or older victim) by 5 (cluster membership) χ^2 analysis. Data were missing for 4 juveniles (.9%) so they were subsequently removed from this analysis. No statistically significant group differences in the proportions of offender/victim age for index offense were found across the 5 clusters, χ^2 (4, N = 435) = 3.72, p = .445. The relationship between physical intrusiveness of the index offense and cluster membership was

examined using a 6 (noncontact sexual offense, fondling, penetration, oral sex, two types of sexual act, or three or more types of sexual act) by 5 (cluster membership) χ^2 analysis. No statistically significant group differences in proportions of physical intrusiveness were found across the 5 clusters, χ^2 (20, N = 438) = 14.17, p = .822. The relationship between index offense victim gender and cluster membership was examined using a 2 (female or male) by 5 (cluster membership) χ^2 analysis. Data were missing for 5 juveniles (1.1%) so those subjects were removed from this analysis. No statistically significant group differences in the proportion of index offense victim gender were found across the 5 clusters, χ^2 (4, N = 434) = 1.55, p = .818.

The association between the juvenile's relationship to his victim for the index offense and cluster membership was assessed using a 6 (sibling, other relative, friend/peer, girlfriend, stranger, or animal) by 5 (cluster membership) χ^2 analysis. Data were missing for 7 juveniles (1.6%) so they were removed from the analyses. Since there was only 1 animal victim, this category was removed from the analysis making it a 5 by 5 χ^2 analysis. No statistically significant group differences in the proportion of juvenile/victim relationship and cluster membership were found across the 5 clusters, χ^2 (16, N = 431) = 11.99, p = .745. Since more than 20% of cells for girlfriend and stranger had fewer than 5 in each cell, these variables were removed and the analyses were re-run. These results showed no significant group differences in juvenile/victim relationship and cluster membership across the clusters, χ^2 (8, N = 401) = 4.06, p = .852. Finally, the relationship between use of restraint during the index offense and cluster membership was assessed using a 2 (yes restraint used or no restraint used) by 5 (cluster membership) χ^2 analysis. Data were missing for 33 juveniles (7.5%) so they were removed from the

analyses. No statistically significant group differences in the proportion of use of restraint and cluster membership were found across the 5 clusters, χ^2 (4, N = 405) = 1.60, p = .808.

For the final hypothesis 3a analyses, clinical interview variables were compared to cluster membership using one-way ANOVAs. See Table 21 for a summary of these analyses. Juvenile age was compared with cluster membership using a one-way ANOVA. A significant difference was found on juvenile age, F(4, 435) = 3.53, p = .008. Pairwise comparisons using Tukey's *HSD* post hoc analyses revealed significant differences between groups. Significant differences were detected between juvenile age in Cluster 5 (M = 15.18, SD = 1.44) and juvenile age in Clusters 2 (M = 16.01, SD = 1.40), 3 (M = 15.87, SD = 1.50), and 4 (M = 15.91, SD = 1.24), indicating that juveniles in Cluster 5 are significantly younger than juveniles in Clusters 2, 3, or 4. No significant difference was found between Clusters 5 and 1 (M = 15.80, SD = 1.28) or between Clusters 1 and 3, indicating that juveniles in Cluster 1 have similar ages to juveniles in Clusters 3 and 5.

For juveniles reporting a history of sexual abuse, juvenile age when first sexually abused was compared with cluster membership using a one-way ANOVA. No significant difference was found, F(4, 130) = .79, p = .532, indicating that juvenile age at when first sexually abused did not differ across clusters. For juveniles reporting a history of physical abuse, juvenile age when first physically abused was compared with cluster membership using a one-way ANOVA. No significant difference was found, F(4, 160) = 1.83, p = .126, indicating that juvenile age when first physically abused did not differ across clusters. Number of admitted sexual offenses was compared with cluster

membership using a one-way ANOVA. No significant difference across clusters was found, $F(4, 434) = 1.34$, $p = .255$, indicating number of sexual offenses committed does not distinguish cluster membership. Number of victims was compared with cluster membership using a one-way ANOVA. No significant difference in number of victims across clusters was found, $F(4, 420) = .47$, $p = .760$. Age of first victim was compared with cluster membership using a one-way ANOVA. No significant difference was found across cluster, although this finding approached significance, $F(4, 430) = 2.24$, $p = .064$. Upon examination of first victim age across clusters, it appears that victim age in Clusters 1 ($M = 8.96$, $SD = 3.81$), 2 ($M = 8.88$, $SD = 4.05$), and 3 ($M = 8.80$, $SD = 4.14$) was younger than victim age in Clusters 4 ($M = 10.64$, $SD = 7.29$) and 5 ($M = 10.28$, $SD = 7.51$). Age of second victim was compared with cluster membership using a one-way ANOVA. No significant difference in age of second victim was found across clusters, $F(4, 429) = .35$, $p = .843$.

Hypothesis 3b: The HARE PCL:YV Total Score, HARE Factor 1 Score (Selfish, Callous, and Remorseless Use of Others), and Factor 2 Score (Chronically Unstable and Antisocial Lifestyle) will be significantly different across the cluster groups as examined by one-way ANOVA.

Total Score on the HARE PCL:YV was compared with cluster membership using a one-way ANOVA. A significant difference was found for Total Score, $F(4, 429) = 23.75$, $p = .000$. Tukey's *HSD* post hoc analyses were performed to identify specific differences between clusters. Significant differences were found, with scores in Clusters 2 ($M = 12.71$, $SD = 7.56$) and 3 ($M = 14.04$, $SD = 6.58$) being lower than scores in Clusters 1 ($M = 21.07$, $SD = 8.71$), 4 ($M = 19.74$, $SD = 8.12$), and 5 ($M = 20.57$, $SD =$

7.23). The HARE Factor 1 Score (Selfish, Callous, and Remorseless Use of Others) was compared with cluster membership using a one-way ANOVA. A significant difference was found for the Factor 1 Score, $F(4, 425) = 10.30$, $p = .000$. Using Tukey's *HSD* post hoc analyses, significant differences were found. Factor 1 Scores in Clusters 2 ($M = 5.01$, $SD = 3.25$) and 3 ($M = 5.13$, $SD = 3.05$) were lower than scores in Clusters 1 ($M = 7.64$, $SD = 4.32$), 4 ($M = 7.07$, $SD = 3.98$), and 5 ($M = 7.19$, $SD = 3.47$). The HARE Factor 2 Score (Chronically Unstable and Antisocial Lifestyle) was compared with cluster membership using a one-way ANOVA. A significant difference was found for the Factor 2 Score, $F(4, 425) = 26.10$, $p = .000$. Tukey's HSD post hoc analyses were performed. Significant differences were found in Factor 2 Scores across clusters with scores being lower in Clusters 2 ($M = 5.92$, $SD = 3.97$) and 3 ($M = 7.21$, $SD = 3.49$) than in Clusters 1 ($M = 10.29$, $SD = 3.62$), 4 ($M = 9.68$, $SD = 4.07$), and 5 ($M = 10.42$, $SD = 3.33$).

Hypothesis 3c: The J-SOAP and J-SOAP II pre-treatment Factor 1 Score (Sexual Drive/Sexual Preoccupation) and Factor 2 Score (Impulsive, Antisocial Behavior), post-treatment Factor 3 Score (Clinical Intervention) and Factor 4 Score (Community Stability) will be significantly different across clusters with one-way ANOVA. A dynamic risk change score will be formed by subtracting pre and post-treatment Dynamic Factor Scores (summation of Factors 3 (Clinical Intervention) and 4 (Community Stability)) and it will show significant differences across the clusters using a one-way ANOVA.

All J-SOAP and J-SOAP II scores were compared with cluster membership using a one-way ANOVA. When findings were significant, Tukey's *HSD* post hoc analyses

were performed. See Table 23 for a summary of findings for hypothesis 3c. The J-SOAP pre-treatment Factor 1 Score (Sexual Drive/Sexual Preoccupation) was compared with cluster membership and this score was not significantly different across clusters, $F(4, 272) = 1.28$, $p = .279$. The J-SOAP pre-treatment Factor 2 Score (Impulsive, Antisocial Behavior) was compared with cluster membership and was found to be significantly different across clusters, $F(4, 272) = 15.16$, $p = .000$. Tukey's post hoc analyses revealed that pre-treatment Factor 2 Scores were significantly lower in Cluster 2 ($M = 11.54$, $SD = 5.31$) than in the other clusters. Pre-treatment Factor 2 Scores were significantly higher in Clusters 1 ($M = 17.29$, $SD = 3.64$) and 5 ($M = 16.66$, $SD = 3.10$) than in the other clusters. The J-SOAP post-treatment Factor 3 Score (Clinical Intervention) was compared with cluster membership and no significant difference was found across clusters, $F(4, 155) = 1.87$, $p = .118$. The J-SOAP post-treatment Factor 4 Score (Community Stability) was compared with cluster member and no significant difference was found across clusters, $F(4, 148) = 1.99$, $p = .100$. The J-SOAP pre-post dynamic score was computed by subtracting the sum of the post-treatment Factors 3 and 4 Scores from the sum of the pre-treatment Factors 3 and 4 Scores. This J-SOAP dynamic score was compared with cluster membership and no significant differences were found across clusters, $F(4, 147) = 1.43$, $p = .226$.

The J-SOAP II pre-treatment Factor 1 Score (Sexual Drive/Sexual Preoccupation) was compared with cluster membership and this score was not significantly different across clusters, $F(4, 158) = 2.10$, $p = .083$. The J-SOAP II pre-treatment Factor 2 Score (Impulsive, Antisocial Behavior) was compared with cluster membership and was found to be significantly different across clusters, $F(4, 158) = 9.04p = .000$. Tukey's post hoc

analyses revealed that pre-treatment Factor 2 Scores were significantly lower in Cluster 2 (M = 6.72, SD = 4.08) than in the other clusters. Pre-treatment Factor 2 scores were significantly higher in Cluster 4 (M = 10.48, SD = 2.43) than in the other clusters. The J-SOAP II post-treatment Factor 3 Score (Clinical Intervention) was compared with cluster membership and a significant difference was found across clusters, $F(4, 92) = 3.06$, $p = .021$. However, Tukey's post hoc analyses showed no significant differences across J-SOAP II post-treatment Factor 3 Scores. The J-SOAP II post-treatment Factor 4 Score (Community Stability) was compared with cluster member and a significant difference was found across clusters, $F(4, 92) = 4.53$, $p = .002$. Tukey's post hoc analyses revealed that the post-treatment Factor 4 Score was significantly lower in Cluster 2 (M = 2.29, SD = 2.03) and significantly higher in Cluster 5 (M = 5.25, SD = 2.90) compared to the other clusters. The J-SOAP II pre-post dynamic score was computed by subtracting the sum of the post-treatment Factors 3 and 4 Scores from the sum of the pre-treatment Factors 3 and 4 Scores. This J-SOAP II dynamic score was compared with cluster membership and no significant differences were found across clusters, $F(4, 47) = .7$, $p = .685$.

Hypothesis 3d: A Global Trauma Score will be devised by dividing juvenile sex offenders into three groups according to their experiences of various forms of stress/trauma/victimization (none, 1 to 3 incidents of stress/trauma/victimization, and 4 to 7 incidents of stress/trauma/victimization). This score will be significantly different across clusters formed using chi square analysis.

A comparison of the full sample five-cluster solution on the global trauma variable was conducted using nonparametric chi-square analyses. The relationship between global trauma on cluster membership was assessed by using a 3 (none, 1 to 3, 4

to 6) by 5 (cluster membership) χ^2 analysis. Global trauma victimization was associated with cluster membership, χ^2 (8, N = 440) = 15.31, p = .053. Overall, 8.2% of the sample reported no form of stress/trauma/victimization, 70.5% reported experiencing between 1 and 3 forms of stress/trauma/victimization, and 21.4% reported experiencing between 4 and 7 forms of stress/trauma/victimization. Juveniles in Clusters 3 and 4 were more likely to have 1 to 3 forms while juveniles in Cluster 3 were more likely to have 4 to 7 forms. See Table 24 for a summary of the chi-square analyses with the global trauma score.

Hypothesis 3e: Factor analysis on various measures of internalizing symptoms (JI Withdrawal-Depression Scale, JI Social Anxiety Scale, KSADS Depressive Disorder Current, KSADS Overanxious/Generalized Anxiety Disorder Current, KSADS Obsessive-Compulsive Disorder Current, RADS Total Score) will be performed to create an Internalizing Variable Group. The factor score from the Internalizing Variable Group will be significantly different across cluster groups using one-way ANOVA.

Exploratory factor analysis using the Maximum Likelihood extraction method and the rule of eigenvalues greater than one was conducted with the following measures of internalizing symptoms: JI Withdrawal-Depression Scale, JI Social Anxiety Scale, KSADS Depressive Disorder Current, KSADS Overanxious/Generalized Anxiety Disorder Current, KSADS Obsessive-Compulsive Disorder Current, RADS Total Score. As described earlier, a one-factor solution accounting for 34.35% of the variance was selected (see Table 7). The final variables for the Internalizing Factor score were K-SADS Depressive Disorder Current (KSADSdep), K-SADS Overanxious/Generalized Anxiety Disorder Current (KSADSanx), JI Withdrawal-Depression (JIwithdep), JI Social

Anxiety (JIsocanx), and Reynolds Total Depression Score (RADS). The factor matrix is presented in Table 9.

The Internalizing Factor score was compared with cluster membership using a one-way ANOVA (see Table 25). A significant difference was found, $F(4, 418) = 59.92$, $p = .000$. Tukey's *HSD* post hoc analyses were performed to identify specific differences between clusters. Significant differences were found, with scores in Clusters 2 ($M = -.34$, $SD = .73$) and 4 ($M = -.59$, $SD = .65$) being lower than scores in Clusters 5 ($M = .28$, $SD = .68$) and 3 ($M = .57$, $SD = .71$). Cluster 1 scores ($M = .99$, $SD = .70$) were significantly higher than scores found in all of the other clusters. In all, the lowest internalizing score was found in Clusters 2 and 4 and the highest internalizing score was found in Cluster 1.

Hypothesis 3f: Factor analysis on various measures of externalizing symptoms (JI Manifest Aggression Scale, HARE Poor Anger Control, HARE Impulsivity, KSADS ADHD Current, KSADS ODD Current, KSADS CD Current) will be performed to create an Externalizing Variable Group. The factor score from the Externalizing Variable Group will be significantly different across cluster groups using one-way ANOVA.

Exploratory factor analysis using the Maximum Likelihood extraction method and the rule of eigenvalues greater than one was conducted with the following measures of externalizing symptoms: HARE Poor Anger Control (HAREang), HARE Impulsivity (HAREimp), K-SADS ADHD Current (KSADSadhd), K-SADS ODD Current (KSADSodd), K-SADS CD Current (KSADScd), and JI Manifest Aggression (JIagg). As described earlier, a one-factor solution accounting for 43.24% of the variance was

selected (see Table 8). All externalizing variables were used in the Externalizing Factor score were. The factor matrix is presented in Table 10.

The Externalizing Factor score was compared with cluster membership using a one-way ANOVA (see Table 25). A significant difference was found, $F(4, 420) = 38.04$, $p = .000$. Tukey's *HSD* post hoc analyses were performed to identify specific differences between clusters. Significant differences were found, with the score in Cluster 2 ($M = -.49$, $SD = .84$) being significantly lower than the score in Cluster 3 ($M = -.11$, $SD = .80$). The externalizing score was significantly lower in Cluster 3 than in Clusters 4 ($M = .33$, $SD = .75$) and 1 ($M = .63$, $SD = .75$) and the externalizing score was significantly higher in Cluster 5 ($M = .77$, $SD = .61$) than in Clusters 2, 3, and 4. In all, the externalizing score was the lowest in Cluster 2 and the highest in Cluster 5.

Hypothesis 3g: All scales on the MSI will be significantly different across clusters formed using one-way ANOVA.

All MSI scores were compared with cluster membership using a one-way ANOVA. When findings were significant, Tukey's *HSD* post hoc analyses were performed. See Table 26 for a summary of hypothesis 3g findings. The MSI Social/Sexual Desirability scale was compared with cluster membership and significant differences were found across clusters, $F(4, 428) = 11.72$, $p = .000$. Tukey's post hoc analyses revealed that scores were significantly lower in Cluster 2 ($M = 19.78$, $SD = 6.49$) and significantly higher in Cluster 1 ($M = 25.54$, $SD = 5.43$) compared to the other clusters. The MSI Sexual Obsession scale was compared with cluster membership and significant differences were found across clusters, $F(4, 428) = 32.72$, $p = .000$. Tukey's post hoc analyses revealed that scores were significantly lower in Clusters 2 ($M = 3.02$,

SD = 2.97) and 4 (*M* = 4.04, *SD* = 3.55) than in Clusters 1 (*M* = 9.02, *SD* = 5.50) and 5 (*M* = 7.88, *SD* = 4.28). No significant score difference was found between Clusters 4 and 3 (*M* = 5.10, *SD* = 3.72). The MSI Lie scale was compared with cluster membership and significant differences were found across clusters, $F(4, 415) = 5.63$, $p = .000$. Tukey's post hoc analyses showed that scores were significantly lower in Cluster 1 (*M* = 9.05, *SD* = 2.84) than in Clusters 2 (*M* = 10.45, *SD* = 2.34) and 4 (*M* = 10.69, *SD* = 1.93).

The MSI Cognitive Distortions scale was compared with cluster membership and significant differences were found across clusters, $F(4, 428) = 23.75$, $p = .000$. Tukey's post hoc analyses revealed that scores were significantly lower in Clusters 2 (*M* = 4.81, *SD* = 2.30) and 4 (*M* = 4.51, *SD* = 2.23) than in Clusters 1 (*M* = 7.22, *SD* = 3.01), 3 (*M* = 6.92, *SD* = 2.55), and 5 (*M* = 6.92, *SD* = 2.31). The MSI Justification scale was compared with cluster membership and significant differences were found across clusters, $F(4, 428) = 14.68$, $p = .000$. Tukey's post hoc analyses revealed that scores were significantly lower in Clusters 2 (*M* = 3.41, *SD* = 2.87) and 4 (*M* = 3.94, *SD* = 3.02) and significantly higher in Clusters 1 (*M* = 5.88, *SD* = 4.16), and 5 (*M* = 7.08, *SD* = 4.13). The MSI Treatment Attitudes scale was compared with cluster membership and significant differences were found across clusters, $F(4, 428) = 4.70$, $p = .000$. Tukey's post hoc analyses revealed that scores were significantly lower in Clusters 2 (*M* = 2.69, *SD* = 2.09), 3 (*M* = 2.86, *SD* = 1.66), and 4 (*M* = 2.32, *SD* = 1.81) and significantly higher in Cluster 1 (*M* = 3.83, *SD* = 1.77).

The MSI Child Molest scale was compared with cluster membership and significant differences were found across clusters, $F(4, 428) = 6.63$, $p = .000$. Tukey's post hoc analyses revealed that scores were significantly lower in Clusters 2 (*M* = 6.01,

SD = 5.70), 3 (*M* = 6.63, *SD* = 5.08), and 4 (*M* = 4.84, *SD* = 4.36) than in Cluster 1 (*M* = 9.27, *SD* = 7.47). Further, scores in Cluster 5 (*M* = 8.71, *SD* = 5.93) were significantly higher than scores in Clusters 2 and 4. The MSI Rape scale was compared with cluster membership and significant differences were found across clusters, $F(4, 428) = 21.03$, $p = .000$. Tukey's post hoc analyses revealed that scores were significantly lower in Clusters 2 (*M* = 2.29, *SD* = 2.68) and 4 (*M* = 1.67, *SD* = 1.71) than in Clusters 1 (*M* = 6.07, *SD* = 4.55) and 5 (*M* = 5.33, *SD* = 4.97). Scores in Cluster 3 (*M* = 3.33, *SD* = 3.42) were significantly higher than scores in Cluster 4 but were significantly lower than scores in Clusters 1 and 5. The MSI Exhibitionism scale was compared with cluster membership and significant differences were found across clusters, $F(4, 428) = 21.74$, $p = .000$. Tukey's post hoc analyses revealed that scores were significantly lower in Clusters 2 (*M* = 1.71, *SD* = 1.81), 3 (*M* = 2.46, *SD* = 2.47), and 4 (*M* = 2.59, *SD* = 2.51) than in Clusters 1 (*M* = 5.22, *SD* = 3.94) and 5 (*M* = 4.47, *SD* = 3.68).

The MSI Fetish scale was compared with cluster membership and significant differences were found across clusters, $F(4, 428) = 13.55$, $p = .000$. Tukey's post hoc analyses revealed that scores were significantly lower in Clusters 2 (*M* = .24, *SD* = .70), 3 (*M* = .43, *SD* = .97), and 4 (*M* = .12, *SD* = .33) than in Cluster 1 (*M* = 1.17, *SD* = 1.38). The score in Cluster 5 (*M* = .78, *SD* = 1.31) was significantly higher than scores in Clusters 2 and 4. The MSI Voyeurism scale was compared with cluster membership and significant differences were found across clusters, $F(4, 428) = 33.35$, $p = .000$. Tukey's post hoc analyses revealed that scores were significantly lower in Clusters 2 (*M* = .73, *SD* = .1.23) and 4 (*M* = .98, *SD* = 1.14) than in Clusters 1 (*M* = 2.93, *SD* = 2.02) and 5 (*M* = 2.71, *SD* = 1.72). The score in Cluster 3 (*M* = 1.53, *SD* = 1.53) was significantly lower

than scores in Clusters 1 and 5. The MSI Obscene Call scale was compared with cluster membership and significant differences were found across clusters, $F(4, 428) = 16.83$, $p = .000$. Tukey's post hoc analyses revealed that scores were significantly lower in Clusters 2 ($M = .35$, $SD = .57$), 3 ($M = .62$, $SD = .87$), and 4 ($M = .48$, $SD = .77$) than in Clusters 1 ($M = 1.29$, $SD = 1.15$) and 5 ($M = 1.08$, $SD = 1.04$). The MSI Bondage and Discipline scale was compared with cluster membership and significant differences were found across clusters, $F(4, 428) = 7.63$, $p = .000$. Tukey's post hoc analyses revealed that scores were significantly lower in Clusters 2 ($M = .22$, $SD = .57$), 3 ($M = .30$, $SD = .74$), and 4 ($M = .34$, $SD = .79$) than in Cluster 1 ($M = .90$, $SD = 1.36$). The score in Cluster 5 ($M = .65$, $SD = 1.05$) was significantly higher than score in Cluster 2. The MSI Sado-Masochism scale was compared with cluster membership and significant differences were found across clusters, $F(4, 428) = 12.57$, $p = .000$. Tukey's post hoc analyses revealed that scores were significantly lower in Clusters 2 ($M = .31$, $SD = .74$), 3 ($M = .48$, $SD = .85$), and 4 ($M = .24$, $SD = .46$) than in Clusters 1 ($M = 1.17$, $SD = 1.45$) and 5 ($M = 1.14$, $SD = 1.89$).

The MSI Physical Disabilities scale was compared with cluster membership and significant differences were found across clusters, $F(4, 428) = 10.31$, $p = .000$. Tukey's post hoc analyses revealed that scores were significantly lower in Clusters 2 ($M = .22$, $SD = .85$), 3 ($M = .42$, $SD = .87$), and 4 ($M = .20$, $SD = .68$) than in Cluster 1 ($M = 1.16$, $SD = 1.46$). The score in Cluster 5 ($M = .73$, $SD = 1.27$) was significantly higher than scores in Clusters 2 and 4. The MSI Impotence scale was compared with cluster membership and significant differences were found across clusters, $F(4, 428) = 8.11$, $p = .000$. Tukey's post hoc analyses revealed that scores were significantly lower in Clusters 2 ($M = .69$, SD

= 1.00) and 4 (*M* = .70, *SD* = 1.15) than in Clusters 1 (*M* = 1.66, *SD* = 1.11) and 5 (*M* = 1.29, *SD* = 1.44). The score in Cluster 3 (*M* = 1.13, *SD* = 1.39) was not significantly different from scores in the other clusters. The MSI Sexual Inadequacies scale was compared with cluster membership and significant differences were found across clusters, $F(4, 428) = 11.59$, $p = .000$. Tukey's post hoc analyses revealed that the score was significantly lower in Cluster 4 (*M* = .93, *SD* = 1.25) than the scores in all of the other clusters. The score in Cluster 1 (*M* = 3.37, *SD* = 2.62) was the highest and was not significantly different from scores in Clusters 3 (*M* = 2.86, *SD* = 2.33) or 5 (*M* = 2.49, *SD* = 2.39).

The MSI Sexual Knowledge and Beliefs scale was compared with cluster membership and no significant differences were found across clusters, $F(4, 428) = 2.00$, $p = .093$. The MSI Sexual History scale was compared with cluster membership and significant differences were found across clusters, $F(4, 426) = 9.27$, $p = .000$. Tukey's post hoc analyses revealed that scores were significantly lower in Clusters 2 (*M* = 8.11, *SD* = 4.16) and 4 (*M* = 7.57, *SD* = 3.50) than in Clusters 1 (*M* = 11.88, *SD* = 7.65) and 5 (*M* = 11.00, *SD* = 5.91).

Hypothesis 3h: The IPPA parent (Parent Trust Total, Parent Communication Total, Parent Alienation Total) and peer (Peer Trust Total, Peer Communication Total, Peer Alienation Total) subscales will be significantly different across cluster groups using one-way ANOVA.

All IPPA scores were compared with cluster membership using a one-way ANOVA. When findings were significant, Tukey's *HSD* post hoc analyses were performed. See Table 27 for a summary of hypothesis 3h findings. The IPPA Parental

Trust scale was compared with cluster membership and significant differences were found across clusters, $F(4, 308) = 5.57$, $p = .000$. Tukey's post hoc analyses revealed that scores were significantly lower in Cluster 1 ($M = 35.84$, $SD = 10.22$) and significantly higher in Clusters 2 ($M = 41.98$, $SD = 7.72$) and 4 ($M = 42.14$, $SD = 6.99$) compared to the other clusters. The IPPA Parental Communication scale was compared with cluster membership and significant differences were found across clusters, $F(4, 308) = 4.43$, $p = .002$. Tukey's post hoc analyses revealed that scores were significantly lower in Cluster 1 ($M = 33.16$, $SD = 10.27$) and significantly higher in Clusters 2 ($M = 38.96$, $SD = 8.43$) and 4 ($M = 38.12$, $SD = 7.24$) compared to the other clusters. The IPPA Parental Alienation scale was compared with cluster membership and significant differences were found across clusters, $F(4, 308) = 14.41$, $p = .000$. Tukey's post hoc analyses revealed that scores were significantly higher in Clusters 1 ($M = 25.22$, $SD = 7.21$) and 5 ($M = 22.14$, $SD = 5.26$) and significantly lower in Cluster 2 ($M = 16.60$, $SD = 6.68$) compared to the other clusters.

The IPPA Peer Trust scale was compared with cluster membership and no significant differences were found across clusters, $F(4, 308) = 1.07$, $p = .372$. The IPPA Peer Communication scale was compared with cluster membership and no significant differences were found across clusters, $F(4, 308) = .20$, $p = .937$. The IPPA Peer Alienation scale was compared with cluster membership and significant differences were found across clusters, $F(4, 308) = 4.12$, $p = .003$. Tukey's post hoc analyses revealed that scores were significantly lower in Clusters 2 ($M = 17.01$, $SD = 5.42$) and 4 ($M = 16.64$, $SD = 11.22$) and significantly higher in Cluster 1 ($M = 21.78$, $SD = 7.95$) compared to the other clusters.

Hypothesis 3i: The SASSI and SASSI-A2 Face Valid Alcohol and Face Valid Other Drug Use scales will show significant differences across clusters using one-way ANOVA.

All SASSI and SASSI-A2 scores were compared with cluster membership using a one-way ANOVA. When findings were significant, Tukey's *HSD* post hoc analyses were performed. See Table 28 for a summary of hypothesis 3i findings. The SASSI Face Valid Alcohol scale was compared with cluster membership and significant differences were found across clusters, $F(4, 171) = 6.96$, $p = .000$. Tukey's post hoc analyses revealed that scores were significantly higher in Cluster 1 ($M = 11.08$, $SD = 9.83$) than in the other clusters. The SASSI Face Valid Other Drug Use scale was compared with cluster membership and significant differences were found across clusters, $F(4, 171) = 6.61$, $p = .000$. Tukey's post hoc analyses revealed that scores were significantly higher in Cluster 1 ($M = 14.00$, $SD = 13.09$) than scores in Clusters 2 ($M = 3.16$, $SD = 6.29$), 3 ($M = 4.15$, $SD = 6.96$), and 4 ($M = 5.33$, $SD = 6.39$).

The SASSI-A2 Face Valid Alcohol scale was compared with cluster membership and significant differences were found across clusters, $F(4, 253) = 12.48$, $p = .000$. Tukey's post hoc analyses revealed that scores were significantly lower in Clusters 2 ($M = 1.07$, $SD = 2.25$), 3 ($M = 3.98$, $SD = 5.94$), and 4 ($M = 3.60$, $SD = 3.61$) than in Cluster 1 ($M = 8.03$, $SD = 8.70$). Further, scores in Cluster 5 ($M = 5.07$, $SD = 7.54$) were significantly higher than scores in Cluster 2. The SASSI-A2 Face Valid Other Drug Use scale was compared with cluster membership and significant differences were found across clusters, $F(4, 253) = 8.98$, $p = .000$. Tukey's post hoc analyses revealed that

scores were significantly higher in Cluster 1 (M = 11.27, SD = 15.61) than scores in Clusters 2 (M = 2.38, SD = 5.21) and 3 (M = 5.20, SD = 8.94).

Hypothesis 3j: All 12 questions from the Caseworker/Therapist Feedback Form will show significant differences across the clusters formed using one-way ANOVA.

All questions from the Caseworker/Therapist Feedback Form were compared with cluster membership using a one-way ANOVA. When findings were significant, Tukey's *HSD* post hoc analyses were performed. See Table 29 for a summary of hypothesis 3j findings. The Accountability question was compared with cluster membership and no significant differences were found across clusters, $F(4, 212) = 2.17$, $p = .074$, although the findings approached significance. Tukey's post hoc analyses showed not scores that were significantly different. The Self-Control question was compared with cluster membership and no significant differences were found across clusters, $F(4, 212) = 2.20$, $p = .070$, although the findings approached significance. Tukey's post hoc analyses showed no scores that were significantly different. The Healthy Masculinity question was compared with cluster membership and significant differences were found across clusters, $F(4, 206) = 2.76$, $p = .029$. However, Tukey's post hoc analyses failed to show scores that were significantly different. The Relapse Prevention question was compared with cluster membership and no significant differences were found across clusters, $F(4, 202) = 1.65$, $p = .163$. The Victim Empathy question was compared with cluster membership and no significant differences were found across clusters, $F(4, 204) = 1.69$, $p = .154$. The Quality of Engagement question was compared with cluster membership and

significant differences were found across clusters, $F(4, 203) = 2.52$, $p = .043$. However, Tukey's post hoc analyses failed to show scores that were significantly different.

The Positive Attitude about Therapy question was compared with cluster membership and no significant differences were found across clusters, $F(4, 206) = 1.85$, $p = .120$. The Group Participation question was compared with cluster membership and no significant differences were found across clusters, $F(4, 198) = 1.51$, $p = .200$. The Prognostic Belief about Sex Offending question was compared with cluster membership and significant differences were found across clusters, $F(4, 209) = 3.01$, $p = .019$. Tukey's post hoc analyses revealed that scores were significantly lower in Cluster 1 ($M = 3.53$, $SD = 1.09$) than scores in Cluster 2 ($M = 4.13$, $SD = .80$). The Prognostic Belief about Criminal Behavior question was compared with cluster membership and significant differences were found across clusters, $F(4, 210) = 3.12$, $p = .016$. However, Tukey's post hoc analyses failed to show scores that were significantly different. The Positive Feelings toward Youth question was compared with cluster membership and no significant differences were found across clusters, $F(4, 210) = 1.28$, $p = .279$. The Negative Feelings toward Youth question was compared with cluster membership and no significant differences were found across clusters, $F(4, 209) = 1.91$, $p = .110$.

DISCUSSION

The main goal of this investigation was to develop a statistically robust and conceptually heuristic juvenile sex offender typology using a core, standard personality inventory. By doing so, a standard set of clusters could become a benchmark for subsequent research and clinical work. A secondary aim was to validate the distinctiveness of the obtained cluster solution against a variety of psychological and biographical measures in order to demonstrate the between cluster differences.

As predicted by the first hypothesis, a clinically relevant five-cluster solution was formed with the number of clusters formed falling within the hypothesized range of 4 to 8 clusters. The obtained clusters demonstrated good within cluster homogeneity and appeared to be significantly distinct and descriptive. The cluster groups included a Broadly Disturbed type, an Anxious/Submissive/Passive type, a Dysthymic/Shame-Based/Negative Self-Image type, a Narcissitic/Delinquent type, and a Distressed/Delinquent type. Further, subtypes with characteristics similar to the ones in this study have been found in other research using cluster analysis with other personality measures (Oxnam & Vess, 2006; Smith et al., 1987; Worling, 2001). In the present study, four out of five clusters were highly stable when the sample was randomly split and the same cluster analyses were conducted with half of the sample, providing support to the second hypothesis.

The five-cluster solution was chosen over the four-cluster solution for several reasons. First, MACI scale elevations seemed more relevant. Second, while juveniles from the fifth cluster (Distressed/Delinquent) were part of the first cluster (Broadly Disturbed) when a four-cluster solution was examined and the first and fifth clusters are similar, juveniles in the fifth cluster evidence less pronounced broad psychopathology and appear to have the added component of more externalizing problems associated with delinquency. The fifth cluster also differed from the fourth cluster (Narcissitic/Delinquent) because juveniles in the fifth cluster appear psychologically disturbed and act-out as a result. This suggests that the fifth cluster is clinically different and distinct from the first cluster. Finally, it is possible that all types have not yet been identified in the few existing juvenile sex offender typology studies and that the sample used in the present study is able to capture more types. These considerations led to a decision to keep the five-cluster solution.

The Chosen Five-Cluster Solution

In the following cluster descriptions, MACI scale elevations are described using McCann's (1999) system of scale interpretation. Scale elevations on the MACI provide many distinctions between groups.

Cluster 1: Broadly Disturbed

Juveniles in Cluster 1 ($N = 42$) are characterized by prominent psychopathology, personality deficits, and a number of concerns about life, as assessed by MACI scale score elevations. Scores on the Depressive Affect and Self-Devaluation scales were in the prominent range, suggesting these areas are of particular concern in Cluster 1. Specifically, the high elevation on the Depressive Affect scale indicates significant

sadness and dysphoria (McCann, 1999). These juveniles report clinical-range symptoms of depression including feelings of hopelessness/guilt, decreased interest in pleasurable activities, and trouble solving problems. Another characteristic of this cluster is social withdrawal and worry. Low self-esteem and self-criticism are major symptoms of juveniles in this cluster. Moreover, these juveniles feel discontented about their perceived incompetence and personal inadequacy. Juveniles with high elevations on the Self-Devaluation scale may be difficult to engage in challenging tasks due to worry about failure (McCann, 1999), which suggests they may be resistant to treatment. Thus, more effort to build rapport and engage them in the therapeutic process is likely indicated.

A number of MACI scales fell in the clinical range, suggesting other important traits of juveniles in Cluster 1. Elevations on the Introversive scale indicate emotional numbing, with reduced ability to experience pleasure or pain (McCann, 1999). These juveniles seem apathetic and detached from others and are likely have few to no close relationships with others, including family members (McCann, 1999). Elevations on the Oppositional scale, another personality scale, suggest a passive-aggressive and negative personality, as opposed to oppositionality as defined in the *DSM-IV* (McCann, 1999). This particular elevated score indicates that Cluster 1 juveniles experience strong feelings of resentment and chronic irritability. These juveniles have short tempers and feel misunderstood by others. Overall, the combination of elevations on the Introversive and Oppositional personality scales suggest strong emotional confusion that is handled in an inconsistent manner, through both internalizing and passive-aggressive behaviors.

The following expressed concerns scales evidenced clinical-range elevations: Identity Diffusion, Self-Devaluation (described previously), Peer Insecurity, Family

Discord, and Childhood Abuse. The high number of elevations in this area indicate Cluster 1 juveniles have many complaints about life and find a variety of troubling issues in their lives. Elevations on the Identity Diffusion scale indicate poor identity formation and lack of vision for the future, which could prove problematic in therapeutic endeavors (McCann, 1999). High scores on the Peer Insecurity scale suggest concerns about being rejected by peers and an inability to fit in with others. Elevations on the Family Discord scale describe perceptions of rejection by family, no family support, and a conflictual home environment. Elevations on the Childhood Abuse scale indicate strong feelings of "shame, embarrassment, or disgust" (McCann, p. 104, 1999) related to a history of child maltreatment in the form of physical, sexual, and/or emotional abuse.

The Substance Abuse Proneness and Suicidal Tendency scales are the other clinical scales showing clinically significant elevations in Cluster 1 juveniles. The substance abuse scale scores suggest these juveniles have experienced trouble due to alcohol and/or drug use. The scale on suicidality indicates suicidal ideation and possible planning. This scale score also suggests feelings of hopelessness and despair.

For juveniles in Cluster 1, the Doleful and Impulsive Propensity scales were in the upper end of the 60 to 74 range, suggesting these traits are approaching clinical significance. Traits measured by the Doleful scale are chronic depression and pessimism and poor ability to solve problems. These characteristics are consistent with those described above.

Several scales fell in the lower to mid portion of the 60 to 74 range, which indicates some presence of the trait. Juveniles in Cluster 1 may be sensitive to rejection and may appear uncomfortable in social situations (McCann, 1999) based on the

Inhibited scale score for this group. Consistent with other elevated scales in Cluster 1, juveniles with elevations on the Inhibited scale have a negative self-perception and have low self-confidence. They often are frozen with anxiety so they have poor problem-solving abilities (McCann, 1999). The slight elevation on the Unruly scale suggests that juveniles in Cluster 1 may exhibit behavioral problems and a tendency to be uncooperative. Similarly, the slight elevation on the Impulsive Propensity scale suggests trouble controlling sexual and behavioral impulses and little thought about consequences for behavior (McCann, 1999). Cluster 1 juveniles tend to focus on their negative traits and dislike themselves based on the Self-Demeaning scale elevation. Importantly, these juveniles may sabotage opportunities for happiness and success (McCann, 1999) so therapeutic endeavors to decrease symptoms of depression may prove quite challenging in Cluster 1 juveniles. The slight elevation on the Borderline Tendency scale suggests the presence of emotional distress and drastically fluctuating emotions. Consistent with the Cluster 1 profile, these intense emotions may precede many forms of acting-out such as tantruming, suicidal behaviors or gesturing, and/or aggressive behaviors (McCann, 1999), or in the case of juveniles in the present study, sexual offending behavior. The slightly elevated score on the Social Insensitivity scale indicates Cluster 1 juveniles have little ability to empathize with others' feelings which causes them to appear cold or callous (McCann, 1999), which may be related to their own inability to experience and express emotions appropriately. Finally, the slight elevation on the Body Disapproval scale indicates worry about growth and maturation and dissatisfaction with physical appearance (McCann, 1999). Such an elevation is indicative of a history of child

maltreatment or poor identity development (McCann, 1999), both of which are indicated by other scale elevations in Cluster 1.

In sum, based on MACI scale scores, juveniles in Cluster 1 are chronically depressed, have poor self-esteem, and are withdrawn from others. They come from dysfunctional family environments and are isolated from peers. They evidence problem-solving deficits with little to no ability to appreciate potential consequences, which causes them to act out impulsively, abuse substances, or withdraw when they become upset. Additionally, these juveniles have histories of maltreatment in the form of physical, sexual, and/or emotional abuse.

Cluster 2: Anxious/Submissive/Passive

Cluster 2 juveniles ($N = 171$) reported clinically significant symptoms of anxiety, worry, and tension, as shown by the elevation on the Anxious Feelings scale. Frequent rumination may cause difficulties in concentration and these juveniles are unable to feel calm in social settings (McCann, 1999). Such elevations are common when outcome is unknown, such as after placement into a residential treatment program or court placements (McCann, 1999), which had occurred with the present study sample. However, such elevations also may indicate clinically relevant symptoms warranting a diagnosis of an anxiety or adjustment disorder with anxiety. Scores on the Submissive scale for juveniles in Cluster 2 fell in the 70 to 74 range, suggesting these traits are approaching the clinical range for this group. Elevations on the Submissive scale indicate characteristics of passivity in relationships and clinginess (McCann, 1999). Fear of abandonment may also occur as well as lack of initiative in social settings and in

completing tasks (McCann, 1999). Feelings of inadequacy and low self-confidence also are traits found in juveniles with elevations on this scale.

Several other MACI scales were slightly elevated, suggesting that juveniles in Cluster 2 experience some of the trait. These scales include the Dramatizing, Conforming, and Sexual Discomfort scales. Elevations on the Dramatizing personality patterns scale indicate a desire to be social and have friendships although relationships tend to be superficial (McCann, 1999). The elevation on the Conforming personality patterns scale indicates that juveniles in Cluster 2 are compliant and attempt to fit in. A socially desirable method of responding may also cause elevations on both the Dramatizing and Conforming scales, which is indicated when both scales are elevated (McCann, 1999) so it appears that juveniles in Cluster 2 wish to portray themselves in a positive light. An elevation was found on the Sexual Discomfort scale, which indicates confusion and/or discomfort regarding sexual thoughts and feelings (McCann, 1999). Juveniles with such an elevation often experience heightened anxiety and fear about sexual impulses, expressions of sexuality, and sexual identity (McCann, 1999).

Based on MACI scale elevations, juveniles in Cluster 2 report clinical levels of anxiety and sexual discomfort/confusion. They also express a desire to conform and be accepted by others. Unfortunately, their relationships tend to be shallow. Of note is that all other scales fell within the normal range, which suggests that Cluster 2 juveniles tend to report less psychiatric impairment compared to juveniles in other clusters.

Cluster 3: Dysthymic/Shame-Based/Negative Self-Image

Cluster 3 juveniles ($N = 94$) are characterized by many internalizing symptoms based on MACI scale elevations. The Depressive Affect clinical scale fell in the clinical

range and suggests that similar to Cluster 1 (Broadly Disturbed) juveniles, Cluster 3 juveniles experience chronic symptoms of depression such as apathy, guilt, low self-confidence, poor problem-solving skills, and hopelessness (McCann, 1999). Of note is that these symptoms of depression are less prominent in Cluster 3 than in Cluster 1, although they suggest clinically significant depressive symptomatology in Cluster 3 juveniles. The Inhibited personality scale score was also elevated in the clinically significant range, suggesting marked sensitivity to rejection and embarrassment, which causes problems enjoying activities and life (McCann, 1999). Due to the fears of humiliation, these juveniles feel lonely and may appear withdrawn and shy. Elevations on this scale indicate low self-esteem and neediness in relationships (McCann, 1999). Any relationships formed will be difficult to break because of reassurance and acceptance felt (McCann, 1999), which may prove useful in the therapeutic relationship. However, challenges may exist in helping these juveniles terminate destructive and/or inappropriate relationships, such as those found in abusive relationships as an abusive victim or a perpetrator.

Several MACI scales are in the upper end of the 60 to 74 range, suggesting these scales approach clinical significance. These scales include the Doleful, Self-Devaluation, and Anxious Feelings scales. Elevations on the Doleful scale are consistent with elevations on the Depressive Affect scale and suggest persistent depressive feelings, pessimism, and trouble enjoying many aspects of life. Feelings of unimportance likely result from real or perceived abandonment from important attachment figures (McCann, 1999). These feelings are likely to generalize to peer relationships (McCann, 1999), so consistent with the elevation on the Introversive scale, Cluster 3 juveniles may appear

detached and withdrawn as a method of avoiding rejection. The elevation on the Self-Devaluation scale indicates unhappiness with self-image and distress over feelings of inadequacy (McCann, 1999). The Anxious Feelings clinical scale elevation approaching the clinical range suggests anxiety and worry about the future as well as difficulty remaining calm.

A number of low to mid score elevations in the 60 to 74 range were found, suggesting some trait presence in several areas. The Introversive scale elevation suggests that at times, Cluster 3 juveniles may have a tendency to engage in activities alone and avoid situations in which social interaction is required. The Submissive scale elevation indicates that Cluster 3 juveniles may behave passively in relationships. These juveniles may feel resentment, irritability, and ambivalence as described by elevations on the Oppositional scale. Some sexual concerns and discomfort are reported by Cluster 3 juveniles as indicated by the Sexual Discomfort elevation. Discontent over peer rejection also is indicated by the slight elevation on the Peer Insecurity expressed concerns scale.

To summarize, MACI scale scores suggest that juveniles in Cluster 3 experience clinically relevant symptoms of depression and anxiety. They are uncomfortable in relationships, especially those with peers, due to rejection by attachment figures. Some sexual anxiety is present in Cluster 3 juveniles. They are plagued by low self-esteem and loneliness. These juveniles withdraw and may seem to prefer engaging in activities alone. This cluster may be described as neurotic due to the large number of internalizing symptoms and characteristics. Cluster 3 differs from Cluster 1 (Broadly Disturbed) in that they evidence a wide range of internalizing problems whereas Cluster 1 juveniles report a broad range of overall psychopathology.

Cluster 4: Narcissitic/Delinquent

Juveniles in Cluster 4 ($N = 83$) evidence delinquency and antisocial tendencies as shown by MACI scale score elevations. The Delinquency Predisposition scale was elevated in the clinical range and suggests that juveniles in this group have engaged in behaviors that violate others' rights (McCann, 1999). These juveniles may not conform to rules in society, are likely to break rules, and are defiant. Many traits of Conduct Disorder may be evident, such as lying, threatening others, theft, and no empathy for others (McCann, 1999). They are hostile and intimidating in relationships. Lying to evade punishment without learning from mistakes also is evident in this group.

Several scale scores in the 60 to 74 range were present, with the Egotistic scale score falling in the upper end of the range. Elevations on the Egotistic scale indicate excess self-confidence, self-centeredness, and arrogance (McCann, 1999). Such individuals have a sense of entitlement and may expect praise and respect from others. An angered or indifferent response may occur when there are perceived slights from others. Another characteristic of juveniles with elevations on this scale is lack of or limited empathy.

Scores on the following scales fell in the low to mid portion of the 60 to 74 range and suggest some of the trait: Dramatizing, Unruly, Social Insensitivity, and Family Discord. Based on the slight Dramatizing scale elevation, Cluster 4 juveniles enjoy interacting with others and have many friends (McCann, 1999). They may engage in risky and sensation-seeking behaviors. The slight elevation on the Unruly scale suggests behavioral problems that result from defying rules of society and oppositionality. These juveniles are uncooperative. Taking advantage of others and lack of concern about others

and their feelings are suggested by the slight elevation on the Social Insensitivity scale. Finally, poor family functioning and parental rejection/hostility is indicated by the slight elevation on the Family Discord scale.

In sum, Cluster 4 juveniles are characterized by delinquency, a sense of entitlement that may result in aggressive behavior if threatened, and sensation-seeking. They express many forms of conduct-disordered behavior. These juveniles have little regard for the welfare of others and come from dysfunctional and harsh family environments. They are happy delinquents.

Cluster 5: Distressed/Delinquent

Cluster 5 juveniles ($N = 50$) had a large number of clinically significant MACI scale scores. Juveniles in Cluster 5 report clinically significant Doleful, Unruly, and Oppositional personality patterns scales. As described previously, elevations on the Doleful scale suggest chronic symptoms of depression and joylessness (McCann, 1999). These juveniles are apathetic and pessimistic. They typically have feelings of incompetence stemming from perceived abandonment by caregivers and others including peers. Elevations on the Unruly scale indicate conduct-disordered behavior resulting from rejection of behavioral and societal norms, making these juveniles behave in uncooperative, oppositional, and hostile ways (McCann, 1999). Cooperation may be feigned with those in authority and these individuals may associate with peers who engage in illegal and rebellious activities. Thus, these juveniles may superficially participate in therapy. Clinical elevations on the Oppositional scale indicate a passive-aggressive and irritable personality style.

The clinical elevation on the Family Discord scale indicates that juveniles in Cluster 5 have troubled family relationships that lack support (McCann, 1999). Moreover, the home life of this group is chaotic and punitive. The juveniles in Cluster 5 evidenced clinical-range elevations on several clinical syndromes scales: Delinquent Predisposition, Impulsive Propensity, and Depressive Affect. The elevation on the Delinquent Predisposition scale, as described earlier, suggests these juveniles engage in conduct-disordered behaviors that are harmful to others (McCann, 1999). The Impulsive Propensity elevation suggests poor behavioral control and engagement in risk-taking behaviors without much thought about consequences (McCann, 1999). The combined elevations of the Delinquent Predisposition and Impulsive Propensity scales indicate engagement in antisocial behaviors that are not planned out (McCann, 1999). The Depressive Affect score suggests these juveniles report experiencing clinically significant depressive symptomatology.

The Substance Abuse Proneness scale was in the upper end of the 60 to 74 range, suggesting substance use issues approach clinical significance in this group. This indicates that juveniles in this group use drugs and/or alcohol and that this substance abuse is beginning to create difficulties in their lives. It may also indicate that these juveniles come from substance-abusing families.

Several MACI scales suggested the presence of some of the trait under consideration in Cluster 5. The slight elevation on the Social Insensitivity scale indicates little regard for others' emotions and wellbeing (McCann, 1999). The Introversive scale elevation suggests lack of pleasure in activities (likely those not involving sensation-seeking) and emotional numbing. The Self-Demeaning scale elevation suggests self-

loathing and feelings of unworthiness stemming from childhood abuse (McCann, 1999). The slight elevation on the Borderline Tendency scale suggests emotional instability and the slight elevation on the Identity Diffusion scale indicates a poor sense of self and lack of direction in life. Finally, the Self-Devaluation elevation suggests unhappiness about self-image.

Taken together, juveniles in Cluster 5 are prone to delinquency and acting out but appear to be highly disturbed as well. This group differs from Cluster 4 (Narcissitic/Delinquent) in that they appear quite emotionally distressed in addition to having delinquent traits. Cluster 5 juveniles tend to be chronically sad and have low self-esteem. As a means of coping with emotional turmoil and due to deficient problem-solving skills, these juveniles impulsively respond, engage in illegal activity, and experiment with alcohol and/or drugs although, overall, they are unhappy delinquents.

Validation of Cluster Solution

Varying levels of support were found for the third hypothesis, which predicted that numerous measures believed to tap into important characteristics of the juvenile sex offender population would show significant differences across clusters formed. Results of the third hypothesis will be discussed and important findings will be integrated into cluster descriptions.

Clinical Interview Variables and Cluster Membership

Numerous victimization, psychological treatment, sex offending, and demographic variables gathered from the pre-treatment clinical interview data were compared with the cluster solution. Per hypothesis 3a, it was predicted that differences in these variables would be found across clusters. Results showed that a history of sexual

abuse was more likely to occur in Clusters 2 and 3. Of the juveniles with a reported history of sexual victimization, no difference in relationship to perpetrator (parent, sibling, family friend, stranger) was found across clusters. Further, no difference in juvenile age when first sexually abused was found across clusters.

With regard to physical abuse victimization, results indicated that such victimization did not significantly differ across clusters. Similarly, of the juveniles with a reported history of physical abuse victimization, no difference in relationship to perpetrator (parent, sibling, other relative, family friend, or other) was found. No significant difference in juvenile age when first physically abused was detected across clusters. History of neglect was not found to be significantly different across clusters and similarly, trauma history was not found to be significantly different across clusters.

History of psychological treatment was compared across clusters. Results showed that juveniles in Cluster 2 were more likely to have a history of psychological treatment while juveniles in Clusters 1 and 5 were least likely to have a history of psychological treatment. Similarly, juveniles in Cluster 2 were more likely to have a history of taking psychotropic medication while juveniles in Clusters 1 and 5 were least likely to have a history of taking psychotropic medication. Juveniles in Clusters 2, 3, and 4 were more likely to be currently taking psychotropic medication compared to juveniles in Clusters 1 and 5. Juveniles in Clusters 1 and 5 reported more overall distress compared to juveniles in the other clusters which suggests that juveniles in these clusters are in need of psychological/psychiatric treatment.

Juvenile sex offending variables were compared across clusters. The offender/victim age discrepancy did not differ significantly across clusters, although

these findings approached significance. Specifically, juveniles in Cluster 4 were more likely to have peer age victims while juveniles in Clusters 2 and 3 were more likely to exhibit a mixed pattern. Juveniles in Cluster 2 also were more likely to have a victim younger by four years or more as well as peer-aged/older victims compared to the other clusters. When examining victim gender ever, no differences were found across clusters. For the index offense, the offender/victim age discrepancy, physical intrusiveness, victim gender, juvenile relationship to victim, and restraint use were evaluated and no significant differences across clusters were found. Number of admitted sexual offenses, number of victims, age of first victim, and age of second victim were compared across clusters and no significant differences across clusters were found. The first victim age approached significance across clusters, with victim age in Clusters 1, 2, and 3 being younger than victim age in Clusters 4 and 5.

Juvenile age was found to be significantly different across clusters. Juveniles in Cluster 5 were significantly younger than juveniles in Clusters 2, 3, or 4 while no age differences were found between Clusters 1 and 5 or between Clusters 1 and 3. Overall, juveniles in Cluster 5 were the youngest (approximately 15 years old) and juveniles in Cluster 2 (approximately 16 years old) were the oldest. Upon examination of the age discrepancy, however, these age differences do not appear to have significant meaning or clinical utility.

To summarize findings of hypothesis 3a, only one of the victimization variables (history of sexual abuse) was found to be significantly different across clusters while all variables about psychological treatment history evidenced differences across clusters. Juvenile age differences were found across clusters but did not appear to provide

meaningful distinctions, as the largest difference in age between groups was a little less than one year. Finally, only one of the sex offending variables approached significance, indicating that age of first victim was younger in the first three clusters. All other variables considered demonstrated insignificant differences across groups. To summarize, results provided mixed support for hypothesis 3a.

Numerous studies have found a relationship between juvenile sex offending and history of sexual abuse as a child (e.g., Burton, 2000; Fehrenbach et al., 1986; Kahn & Chambers, 1991; Kobayashi et al., 1995) and history of physical abuse as a child (e.g., Kobayashi et al., 1995; Righthand et al., 2001; Ryan et al., 1996). The proportion of juveniles in this study reporting a history of sexual abuse at pre-treatment was approximately 31%, which is less than proportions reported in other samples (40%-80%; Becker & Hunter, 1997) so it is possible that juveniles minimized or denied their sexual abuse maltreatment histories. However, results from the present investigation provide information about the personality characteristics of juveniles with such a history and suggest treatment aimed at sexual victimization or history of trauma may be warranted for Cluster 2 juveniles, even when they deny a history of sexual abuse. Approximately 37% of the sample in this study reported a history of physical abuse, which is consistent with proportions found in the juvenile sex offender literature (25% to 50%; Becker & Hunter, 1997). Given that no differences in history of physical abuse were found across clusters, it follows that juvenile sex offenders comprise a group with high levels of abuse histories, which, coupled with history of sexual abuse, may be a risk factor for engaging in sexual offending behaviors. Indeed, the relationship between child maltreatment and the etiology of juvenile sex offending is complex (Prentky et al., 2000) but warrants

further investigation. Unfortunately, clusters formed in the present study did not provide more clarity to the issue.

Previous research has shown that residential samples of juvenile sex offenders experience higher levels of mental health problems (Righthand & Welch, 2004), which is consistent with findings in the present study. It is interesting that juveniles in Cluster 2, the group showing the lowest levels of psychopathology, were more likely to have a history of psychological treatment/past psychotropic medication use and were more likely to be currently taking psychotropic medications. This finding suggests that juveniles in this group may be functioning at a higher level as a result of such therapeutic endeavors. Furthermore, juveniles in clusters with high levels of psychopathology (Clusters 1 and 5) on the MACI were less likely to have a history of psychological treatment. Taken with results on treatment response in this study, it appears that treatment provided during incarceration more or less leveled the field and allowed juveniles with higher levels of psychopathology to benefit from treatment.

Research on offending variables suggests different types of offenses ranging from non-sexual contact to penetrative acts (Righthand, Hennings, & Wigley, 1989; Righthand et al., 2001) but the present investigation failed to distinguish among types of offense related to cluster membership. With regard to victims, important distinctions have been made. Specifically, differences are reported in juveniles who offend against siblings versus non-relatives (Kaufman et al., 1996) although such distinctions were not found in the present study. Other variables related to victims such as gender and age relative to perpetrator are widely discussed in the juvenile sex offender literature (e.g., Hunter,

Hazelwood, and Slesinger, 2000; Richardson, Kelly, and Graham, 1997) but were not found to be related to cluster membership in the present study.

While little relationship between victimization history and sex offending variables was found across clusters, this is consistent with other research attempting to use such demographic variables as victim gender with clusters based on personality measures (Smith et al., 1987). It may be that personality variables measured by the MACI are not sensitive enough to capture sex-offending and victim variables. It is also possible that personality is not directly related to type of sexual offense and victim.

Psychopathy and Cluster Membership

Hypothesis 3b predicted that significant differences would be found in psychopathy as measured by the HARE PCL:YV across clusters. Significant differences were demonstrated across groups for the HARE Total Score, HARE Factor 1 Score (Selfish, Callous, and Remorseless Use of Others), and HARE Factor 2 Score (Chronically Unstable and Antisocial Lifestyle Factor). Total scores of juveniles in Clusters 2 and 3 were in the low range of psychopathy while those of juveniles in Clusters 1, 4, and 5 were in the moderate range of psychopathy. Factor 1 Scores (Selfish, Callous, and Remorseless Use of Others) measuring interpersonal and affective psychopathic traits were lower in Clusters 2 and 3 than in Clusters 1, 4, and 5. Similarly, Factor 2 Scores (Chronically Unstable and Antisocial Lifestyle) examining irresponsibility and impulsivity were lower in Clusters 2 and 3 than in Clusters 1, 4, and 5. In sum, findings support hypothesis 3b, which is consistent with literature suggesting that the construct of psychopathy may be reliably examined in adolescents (Forth et al.,

2003). Further, this construct has been used to predict sexual offense recidivism in juvenile populations (Gretton et al., 2001).

Based on the findings of this study and previous research, it may be surmised that because juveniles in Clusters 2 and 3 evidence less psychopathic traits they may be more amenable to treatment and have less risk of recidivism than juveniles in Clusters 1, 4, and 5. Research indicates that treatment with juveniles who have prominent psychopathic traits is likely to be challenging and so it may need to be relatively long-term compared to treatment of juveniles without such characteristics (Forth et al., 2003). In order to reduce risk of recidivism, both sexual and criminal, juveniles in Clusters 1, 4, and 5 may need treatment targeted at reducing psychopathic traits in addition to treatment addressing sexual offending behaviors.

J-SOAP Scores and Cluster Membership

In hypothesis 3c it was predicted that static and dynamic scores on the J-SOAP I and II, a measure of risk factors common in sexual and criminal reoffending, would be significantly different across clusters. No significant differences in scores were found across clusters on the J-SOAP I and II pre-treatment Factor 1 Score (Sexual Drive/Sexual Preoccupation). Significant differences across clusters were found on the J-SOAP I and II pre-treatment Factor 2 Score (Impulsive, Antisocial Behavior). On the J-SOAP I, juveniles in Cluster 2 had the lowest Factor 2 Score (Impulsive, Antisocial Behavior) while juveniles in Clusters 1 and 5 had the highest Factor 2 Scores (Impulsive, Antisocial Behavior). On the J-SOAP II, juveniles in Cluster 2 had the lowest Factor 2 Score (Impulsive, Antisocial Behavior) while juveniles in Cluster 4 obtained the highest Factor 2 Score (Impulsive, Antisocial Behavior).

When examining the J-SOAP I and II post-treatment Factor 3 Scores (Clinical Intervention) no significant differences were found across clusters. The J-SOAP I post-treatment Factor 4 Score (Community Stability) was not significantly different across clusters. The J-SOAP II post-treatment Factor 4 Score (Community Stability) was, however, different across clusters, with the lowest score found in Cluster 2 and the highest score in Cluster 5.

In order to examine the amount of pre-post treatment change in the Factor 3 (Clinical Intervention) and 4 (Community Stability) Scores, which are proposed to be influenced by treatment response, a dynamic risk change score was formed by subtracting the post-treatment dynamic score from the pre-treatment dynamic score. It was predicted that the dynamic risk change score would show significant differences across groups. For the J-SOAP I and II dynamic risk change score, no significant difference was found across clusters.

With the exception of the J-SOAP I and II pre-treatment Factor 2 Score (Impulsive, Antisocial Behavior), Hypothesis 3c was not supported. The finding that the factor measuring conduct-disordered traits was significant across groups is consistent with the MACI scale score elevations in each cluster and with the findings of significant differences in psychopathy across clusters. The lack of significant findings regarding sexual offending characteristics is consistent with the findings of hypothesis 3a regarding sex offending variables. It appears that specific sex offending demographic variables and behaviors as measured by the J-SOAP do not distinguish clusters formed in the present study.

Global Trauma and Cluster Membership

Per hypothesis 3d, it was predicted that a global trauma score would show significant differences across clusters. The global trauma score was formed by adding the number of types of victimization experienced (sexual abuse, physical abuse, neglect), with whether or not there was a history of trauma, and total number of stressors reported by the youth (up to 3). Juveniles were divided into three groups based on the total number of victimization/trauma/stressors (none, one to three incidents, four to seven incidents). The score was compared across clusters and a significant difference was found across clusters. Juveniles in Cluster 4 were more likely to have between 1 and 3 incidents and juveniles in Cluster 3 were more likely to have both 1 to 3 incidents and 4 and 7 incidents. To summarize, hypothesis 3d was confirmed.

Very little research has investigated the relationship between amount of trauma and juvenile sex offending. Results from the present investigation suggest that the number of traumatic experiences plays a role in personality expression of juvenile sex offenders. Interestingly, Cluster 3 juveniles appeared to be more likely to experience a number of traumatic/stressful/abusive experiences. Possible reasons for this finding in Cluster 3 will be discussed when characteristics of this cluster are discussed later in this text.

Internalizing Symptoms and Cluster Membership

As predicted by hypothesis 3e, an internalizing symptoms factor was formed using factor analysis on a number of variables examining internalizing symptomatology; significant differences were found across clusters. Juveniles in Clusters 2 and 4 expressed the least internalizing symptoms and juveniles in Cluster 1 expressed the most

internalizing symptoms. The finding of more internalizing symptoms in Cluster 1 and fewer internalizing symptoms in Clusters 2 (Anxious/Submissive/Passive) and 4 was consistent with MACI scale score elevations. It appears that symptoms of depression/anxiety provide important personality distinctions in the clusters formed.

Externalizing Symptoms and Cluster Membership

It was predicted that an externalizing symptoms factor would be formed using factor analysis on several measures of externalizing symptomatology and that this score would be different across clusters formed in hypothesis 3f. This hypothesis was confirmed. Juveniles in Cluster 2 had the lowest reported externalizing symptoms and juveniles in Cluster 5 expressed the most externalizing symptoms. Similar to findings using the internalizing symptoms factor, the finding of fewest externalizing symptoms in Cluster 2 and the most in Cluster 5 is consistent with MACI scale score elevations. This finding suggests that oppositionality, inattentiveness/hyperactivity, impulsivity, and conduct-disordered traits provide useful personality differences across clusters. It also suggests that juveniles in Cluster 4, who also evidenced conduct-disordered traits, have personality characteristics more consistent with psychopathy as opposed to behavior disorders.

Psychosexual Characteristics and Cluster Membership

Hypothesis 3g predicted that significant relationships would be found between MSI scales and cluster membership. With the exception of the Sexual Knowledge and Beliefs scale, all scales differed significantly across clusters, so this hypothesis was largely supported. On the Social/Sexual Desirability scale, juveniles in Cluster 2 had the lowest score and juveniles in Cluster 1 had the highest score. Juveniles in Clusters 2 and

4 had significantly lower scores on the Sexual Obsessions scale than juveniles in Clusters 1 and 5. On the Lie scale, juveniles in Cluster 1 had significantly lower scores than those in Clusters 2 (Anxious/Submissive/Passive) and 4. The Cognitive Distortions scale was lower in Clusters 2 (Anxious/Submissive/Passive) and 4 than in the other scales. The Justification scale was lower in Clusters 2 (Anxious/Submissive/Passive) and 4 than in Clusters 1 and 5. Scores on the Treatment Attitudes scale was lower in Clusters 2, 3, and 4 and higher in Cluster 1.

Juveniles in Clusters 2, 3, and 4 had significantly lower scores on the Child Molest scale compared to juveniles in Cluster 1. Scores on the Rape scale were significantly lower in Clusters 2 and 4 than in Clusters 1 and 5. Juveniles in Clusters 2, 3, and 4 had lower scores on the Exhibitionism scale compared with juveniles in Clusters 1 and 5.

Juveniles in Clusters 2, 3, and 4 had the lowest scores on the Fetish scale while juveniles in Cluster 1 had the highest score on this scale. Juveniles in Clusters 2 and 4 had lower scores than juveniles in Clusters 1 and 5 on the Voyeurism scale. Scores on the Obscene Call scale were lower in Clusters 2, 3, and 4 compared to Clusters in 1 and 5. Juveniles in Clusters 2, 3, and 4 had significantly lower scores on the Bondage and Discipline scale and juveniles in Cluster 1 had the highest score on this scale. Juveniles in Clusters 2, 3, and 4 had lower scores on the Sado-Masochism scale compared to juveniles in Clusters 1 and 5.

Scores on the Physical Disabilities scale were lower in Clusters 2, 3, and 4 compared with those in Cluster 1. Juveniles in Clusters 2 and 4 had lower scores on the Impotence scale compared to juveniles in Clusters 1 and 5. Scores on the Sexual

Inadequacies scale were lower in Cluster 4 and highest in Cluster 1. The Sex History scale was lower in juveniles in Clusters 2 and 4 and highest in Clusters 1 and 5.

Many significant distinctions across clusters regarding psychosexual characteristics were made. Overall it appears that juveniles in Clusters 2, 3, and 4 have fewest psychosexual concerns while juveniles in Clusters 1 and 5 seems to evidence more sexual concerns and discomfort. Distinctions between clusters on these psychosexual characteristics will be provided and discussed in more detail when cluster descriptions are presented.

Attachment and Cluster Membership

Attachment to parents and peers as measured by the Parent and Peer Trust Total, Parent and Peer Communication Total, and Parent and Peer Alienation Total of the IPPA was hypothesized to be related to cluster membership in hypothesis 3h. This hypothesis was mostly supported. The Parent Trust Total showed significant differences across groups indicating that juveniles in Cluster 1 trusted caregivers the least while juveniles in Clusters 2 and 4 trusted their caregivers the most. A significant difference across clusters was found on the Parent Communication Total, again suggesting that juveniles in Cluster 1 have less ability to communicate with caregivers and that juveniles in Clusters 2 and 4 have the best communication with their caregivers. The Parental Alienation Total was significantly different across clusters, with juveniles in Clusters 1 and 5 reporting the most perceived alienation and distance with their caregivers and juveniles in Cluster 2 reporting the least alienation from caregivers.

Scores on the Peer Trust Total and the Peer Communication Total did not differ significantly across clusters. The Peer Alienation Total, however, was significantly

different across groups showing that juveniles in Cluster 1 reported the most perceived alienation from peers while juveniles in Clusters 2 and 4 reported the least alienation from peers.

Overall, juveniles in Cluster 2 reported the highest levels of attachment and belief of acceptance by both parents/caregivers and peers. Similarly, juveniles in Cluster 4 also reported better quality of communication with parents/caregivers and the least feelings of parent and peer alienation. Juveniles in Cluster 1 reported the lowest levels of attachment. Juveniles in Cluster 5 also reported distance from caregivers. When examining MACI scores, juveniles in Clusters 2 and 4 reported the fewest internalizing symptoms while juveniles in Clusters 1 and 5 reported significant internalizing symptoms. Interestingly, juveniles in Cluster 3 did not stand out in the hypothesis 3h analyses even though their MACI scores suggest they experience internalizing symptomatology as well. It is possible that the severity of the constellation of internalizing symptoms was not high enough in Cluster 3 compared to Clusters 1 and 5.

These findings support those of other research regarding attachment in adolescents. Specifically, findings from the present study are consistent with Bowlby's (1973) theory that quality of attachment is related to symptoms of depression and anxiety. Further, adolescents with a better quality of parent and peer attachment have a better quality of life and higher self-esteem (Armsden & Greenberg, 1987). Conversely, older adolescents reporting less attachment evidence greater depression, anxiety, and worry than older adolescents reporting secure attachment styles (Vivona, 2000).

Substance Abuse and Cluster Membership

It was predicted that alcohol and drug abuse measured by the SASSI and SASSI-A2 would be significantly different across clusters in the chosen cluster solution. Hypothesis 3i was robustly supported. On both the SASSI and SASSI-A2, juveniles in Cluster 1 were found to have the highest levels of alcohol abuse. Cluster 1 juveniles also had the highest levels of other drug abuse, as measured by both the SASSI and SASSI-A2.

Juveniles in Cluster 1 have significant levels of psychopathology as shown on the MACI scale scores. Their score on the Substance Abuse Proneness scale was in the clinically significant range, providing further support to the notion that substance abuse issues plague these juveniles.

Post-Treatment Therapist Feedback and Cluster Membership

A post-treatment therapist-completed questionnaire was predicted to show significant differences across clusters in the final hypothesis, hypothesis 3j. Overall, very little support was provided for this hypothesis. On several questions with statistically significant differences on one-way ANOVAs, there was a failure to find significant between-group differences using Tukey *HSD* post hoc analyses. The only question that was significantly different across clusters was the one pertaining to the therapist's prognostic belief about the juvenile's risk to sexually re-offend. On this question, juveniles in Cluster 1 had the lowest score and juveniles in Cluster 2 had the highest score. Importantly, the range of scores between these clusters was very small and does not appear to have a strong clinical implication, as scores in Cluster 1 were between "average" and "high average" and scores in Cluster 2 were "average." However, it

appears that therapists of juveniles in Cluster 1 may have a slightly less optimistic view about their response to sex offender treatment compared to juveniles in the other groups. Similarly, it appears that therapists of juveniles in Cluster 2 have a slightly more optimistic view of their response to sex offender treatment.

This finding is interesting because at pre-treatment, juveniles in Cluster 1 appeared to experience high levels of psychopathology while juveniles in Cluster 2 appeared to have some anxiety but otherwise did not evidence significant psychopathology. This lends support to the notion that Cluster 1 juveniles are highly disturbed whereas Cluster 2 juveniles are mostly functioning in the normal range of psychological well-being. It further suggests that treatment with these clusters should be qualitatively different in order to provide emotional healing and prevent sexual and criminal re-offense.

Another implication of finding little to no difference in perceived treatment response across clusters is that almost all juvenile sex offenders have positive responses to treatment. This finding is consistent with the literature, which suggests that the overall recidivism rate for treated juvenile sex offenders is between 7 to 13% when follow-up periods of 2 to 5 years are observed (Hunter, 2000). A direction for future research would be to follow juveniles post-incarceration from the present study to determine rates of sexual re-offense and evaluate relationship to cluster membership. It is possible that Cluster 1 juveniles would have higher sexual recidivism rates and that Cluster 2 juveniles would have the lowest rates of sexual recidivism.

Analysis of Cluster Groups Based on Validation Variables

Upon examination of validation measures used in the present study, juveniles in the Broadly Disturbed cluster (Cluster 1) consistently demonstrate severe psychopathology and internalizing symptoms. Compared to juveniles in other clusters, however, they are not as likely to be a sexual abuse victim. The Broadly Disturbed juveniles are least likely to have a history of mental health treatment and with regard to sex offending variables, victims of these juveniles tend to be younger than victims of juveniles in other groups.

Broadly Disturbed juveniles have moderate levels of psychopathy, which is a risk factor for development of antisocial personality disorder in adulthood. They have comparably high levels of different factors of psychopathy, as shown by both interpersonal/affective psychopathic traits and irresponsibility/impulsivity. It follows that juveniles in the Broadly Disturbed cluster may be less amenable to treatment and thus may pose a higher risk of sexual offense recidivism.

When examining psychosexual behaviors, Broadly Disturbed juveniles responded in a manner suggestive of many cognitive distortions and justifications for sexual offending behaviors. These juveniles expressed more sexually deviant (child molestation, rape, and exhibitionism) and atypical sexual behaviors (fetishism, voyeurism, obscene phone calls, bondage and discipline, sado-masochism), which suggests this group has more developed sexual deviancy that requires specific treatment. In addition, Broadly Disturbed juveniles reported higher levels of sexual dysfunction compared to other clusters. Importantly, however, is that this group of juveniles appeared to express a positive attitude toward treatment although at the end of treatment, therapists

reported a slightly less optimistic view of sexual reoffense. Overall, it appears that juveniles in the Broadly Disturbed cluster are oversexualized and have many risk factors of sexual re-offending.

With regard to attachment, juveniles in the Broadly Disturbed group experience the least parental/caregiver attachment and feel disconnected from peers as well. It is also noted that these juveniles have the highest levels of alcohol and drug abuse, which suggests these juveniles attempt to escape their severe levels of distress by using substances.

The finding of a Broadly Disturbed group is similar to Smith and colleagues (1987) Group I, although the cluster in the present study demonstrated much higher levels of psychopathology and overall dysfunction. Broadly Disturbed juveniles are much more consistent with Worling's (2001) Unusual/Isolated group in that both groups of juveniles are described as showing interpersonal deficits and high amounts of internalizing difficulties. The Unusual/Isolated group was found to have both higher sexual and nonsexual recidivism rates, as was suggested by findings of the present study on the Broadly Disturbed cluster. In addition, both the Broadly Disturbed cluster and the Unusual/Isolated group have peer relationship deficits. Broadly Disturbed juveniles also are similar to the "Inadequate" group from Oxnam and Vess's (2006) study, as this group was described as experiencing internalizing symptoms and significant psychopathology. Similar to juveniles in the Broadly Disturbed cluster, the "Inadequate" group was negative and had a poor sense of self-worth.

Use of validation measures mostly confirmed the finding that the Anxious/Submissive/Passive cluster (Cluster 2) represents the least amount of

psychopathology of all clusters formed. Interestingly, these juveniles were more likely to be victims of sexual abuse compared to other clusters. Also, the Anxious/Submissive/Passive juveniles tended to have a history of mental health treatment and be receiving current mental health treatment. This group evidenced very little psychopathy, which suggests that these juveniles may be more amenable to sex offender treatment. Furthermore, these juveniles appear to become stable during treatment.

While Anxious/Submissive/Passive juveniles reported discomfort with sexuality and sexual concerns on the MACI, their scores on the measure of psychosexual behavior (MSI) were in the low range, indicating low levels of sexual deviance and very little engagement in atypical sexual behaviors. However, validity scales suggested these juveniles responded defensively so the true nature of their sexual behaviors cannot be determined. It is likely that Anxious/Submissive/Passive juveniles experience significant levels of distress and uneasiness about sexuality so they attempt to deny such feelings.

A protective factor for juveniles in the Anxious/Submissive/Passive cluster is the reported level of parental/caregiver attachment and some peer attachment. It appears that these juveniles have some social skills that may allow them to attach to others. In addition, the Anxious/Submissive/Passive cluster juveniles received the highest rating on therapist's belief regarding their risk for sexual reoffense. Taken together, these juveniles appear to be closer to the normal range of functioning than juveniles in other clusters and are best able to benefit from therapeutic work compared to other groups.

The finding of a less psychiatrically impaired group is consistent with other work developing typologies based on personality measures. Specifically, Anxious/Submissive/Passive cluster juveniles were similar to Groups I and III of the

Smith et al. study (1987) and the Overcontrolled/Reserved group of the Worling study (2001). Furthermore, findings of a normal group were also described in recent research by Oxnam and Vess (2006). Overall there appears to be a group of juvenile sex offenders who are not plagued by significant psychopathology and thus may respond to treatment faster and more completely than juveniles from other groups.

When examining validation measures, some important findings about the Dysthymic/Shame-Based/Negative Self-Image cluster (Cluster 3) emerge. These juveniles appear to have high rates of sexual abuse victimization histories and a large number of types of abuse, traumatic experiences, and stressors. Similar to the Broadly Disturbed cluster, their victims tend to be younger, although a more mixed pattern of victim/offender age is also found and similar to the Anxious/Submissive/Passive cluster, this group does not express psychopathic characteristics. They are likely to be currently taking psychotropic medications. The fact that Dysthymic/Shame-Based/Negative Self-Image juveniles have few psychopathic traits and are currently receiving mental health treatment in the form of medication indicates that this group is likely to respond to treatment and have lower sexual recidivism rates. However, these juveniles report higher cognitive distortions and lower motivation for treatment, which suggests extra time should be spent engaging these juveniles in treatment. Due to the higher levels of traumatic experiences, it may be warranted to therapeutically address such experiences prior to beginning treatment specific to the sex-offending behaviors, which do not appear prominent in this group. While this cluster is not consistent with clusters formed in previous research (Oxnam & Vess, 2006; Smith et al., 1987; Worling, 2001) it appears to provide an important distinction in that these juveniles have experienced higher levels of

trauma. There also appears to be different treatment implications for juveniles in this cluster compared to those in other clusters.

Validation measures indicate that the Narcissitic/Delinquent cluster (Cluster 4) juveniles may be more likely to have a peer age victim or older first victim. Similar to the Broadly Disturbed cluster, they have moderate levels of psychopathy and have comparably high levels of different factors of psychopathy (interpersonal/affective psychopathic traits and irresponsibility/impulsivity). Narcissistic/Delinquent juveniles may be less amenable to treatment and thus may pose a higher risk of sexual offense recidivism. Based on the personality traits, this group appears to have a higher chance of nonsexual reoffense as well. Narcissistic/Delinquent juveniles may have experienced some traumatic events but are less likely to express internalizing symptoms. This finding implies that these juveniles handle trauma by behaving in antisocial ways and by disregarding the rights of others.

With regard to psychosexual characteristics, it appears the Narcissistic/Delinquent group did not respond truthfully, as the validity scales indicated a tendency to minimize psychosexual deviance. Similar to the Anxious/Submissive/Passive juveniles, Narcissistic/Delinquent juveniles reported adequate levels of parental/caregiver attachment. Based on the personality profile of these juveniles, however, it appears that these juveniles are too self-absorbed and psychopathic to be bothered by rejection. Juveniles in the Narcissistic/Delinquent cluster may need treatment to target impulsivity (anger management, coping mechanisms for handling upsetting emotions) and antisocial behaviors/beliefs in addition to sex offender treatment.

Distressed/Delinquent (Cluster 5) juveniles are less likely to have a history of mental health treatment according to the validation measures. They do not tend to report a history of sexual victimization and their first victims tend to be older. Similar to the Broadly Disturbed and Narcissistic/Delinquent clusters, these juveniles evidence moderate levels of psychopathy including higher levels of interpersonal/affective traits and irresponsibility/impulsivity. This group differs from other clusters in that they engage in externalizing behaviors and experience significant internalizing symptoms.

Juveniles in the Distressed/Delinquent cluster experience psychosexual deviance and related cognitive distortions. The characteristics of juveniles in the Distressed/Delinquent cluster have not been reported in other studies of juvenile sex offender personality type (Oxnam & Vess, 2006; Smith et al., 1987; Worling, 2001) but it is believed to tap into an important group of juveniles. Overall, Distressed/Delinquent juveniles behave in deviant/antisocial ways but experience large amounts of distress because of it. Treatment aimed at both alleviation of internalizing symptoms and at improving cooperation/reducing deviancy may be useful for juveniles in this group.

In conclusion, a five-cluster juvenile sex offender typology was formed using the MACI and validated with measures examining sexual abuse history, maltreatment/trauma history, mental health treatment history, psychopathy, psychosexual behaviors and characteristics, internalizing and externalizing symptomatology, attachment to parents, alienation from peers, and substance abuse history. In addition, the victim/offender age discrepancy and therapist prediction of sexual recidivism post-treatment approached significance and appeared to provide important cluster distinctions.

Conceptual Analysis of the Clustering Process

Cluster analysis is an exploratory statistical technique used to identify natural and meaningful groups within populations of interest and in the case of the present study, form a typology of juvenile sex offenders. Results of this study support a five-cluster solution but it is limited by the very statistical technique used to create it, as cluster analysis has numerous inherent limitations and caveats. It is problematic that the cluster groupings tend to widely differ based on the type of cluster analytic procedures used (hierarchical versus nonhierarchical), distance equation used, and clustering algorithm used. Case order may influence results of cluster solutions as well. Furthermore, one major assumption is that the variables used in creation of the clusters are relevant and meaningful variables, as cluster groups will be formed regardless of the true existence of clusters. Many efforts were made to limit the impact of these caveats in the present study but there is no statistical method of verifying clusters formed.

The clusters formed in the present investigation make clinical and psychological sense and are largely based on patterns in research. Importantly and interestingly, however, is that most of these groupings appeared in various cluster analytic iterations performed in this study. In most analyses, the following groups emerged based on MACI scale scores: a group with severe psychopathology, a group evidencing very little psychopathology, a group with internalizing symptoms, a group with externalizing and internalizing symptoms, and an antisocial/delinquent group. This lends support to the relative stability of the clusters formed and in the absence of validation measures to find group differences, provides anecdotal value to clusters formed. Taken with the validation

measures used in this study, the clusters formed are supported as important types of juvenile sex offenders.

Limitations

There are a number of strengths to the present study including a large sample and data gathered at both pre- and post-treatment intervals. A large number of data were gathered including records reviews, structured and semi-structured interview protocols, self-report measures, and measures completed by treatment providers. Unlike other studies that examine juvenile sex offenders who are receiving outpatient treatment, this sample is of juveniles adjudicated for a sexual offense. Thus, the present sample represents a more severely impaired group of juveniles compared to those represented in other studies. While a number of strengths exist, there are some study limitations that warrant discussion.

First, the sample from the present study is limited to juveniles in the southeast, so this sample may not be representative of juveniles in other parts of the United States or other countries. Notably, however, is that almost all adjudicated juvenile sex offenders in the state participated in this investigation, which lends strength to the comprehensiveness of the sample. Second, as mentioned above, juveniles in this study represent those adjudicated for a sexual offense so the results of this study may not generalize to other populations of juvenile sex offenders (i.e., those being treated on an outpatient basis and those not adjudicated). Thus, future studies should examine whether clusters found in this study are found in other groups of juveniles sex offenders.

A third limitation is that cluster analysis is an exploratory technique so no causal inferences may be made. Future research should examine the stability of the clusters

formed in this study by study replication. It may also prove useful to identify MACI score elevations found in clusters from this study and examine traits of those juveniles to determine whether they are consistent with results of validation measures in the present study. In other words, such an investigation would work backwards by grouping based on MACI scores and then validating those groupings with measures. Should the clusters found in the present study be supported by future research, treatment studies may be conducted to examine treatment efficacy across groups. One difficulty with treatment studies in the juvenile sex offender population is that no one form of treatment is supported over another. Specifically, a handful of studies suggest that cognitive-behavioral and systemic interventions are related to reduced sexual and nonsexual recidivism rates in juvenile sex offenders (e.g., Hanson et al., 2002; Walker et al., 2004) but other researchers contend that while there are claims that cognitive-behavior therapy is more effective than other forms of therapy, no significant evidence exists to support these assertions (Rich, 2003).

A fourth limitation is that some of the data is based on self-report. While records were reviewed when available, no verification of self-reports by collateral sources such as parents, caregivers, or teachers, was available. Moreover, despite the informed consent process prior to initiating the evaluation, juveniles may have defensively responded to questions or have limited insight in order to accurately complete measures, possibly due to the punitive setting of the evaluation. For instance, children tend to be poor informants, especially when reporting externalizing symptoms (Merrell, 2003). Further, juveniles typically began the pre-treatment assessment process two weeks to one month after entering the facility so it is also possible that some of the elevated levels of

symptomatology were related to transient adjustment issues as opposed to long-standing symptoms of psychopathology. Finally, the use of ANOVA and chi-square analyses limit findings because these analyses are subjected to Type I errors.

Future Directions

Future studies should examine the influence of treatment length on cluster type to determine information related to treatment, as results of this study suggested similar treatment responses across groups. As mentioned earlier, replication of the cluster analysis using the MACI on other groups of juvenile sex offenders, such as those seen on an outpatient basis or female juvenile sex offenders, should be conducted. Improved outcome measures may also highlight cluster differences so efforts to create relevant post-treatment questionnaires for therapists and juveniles as well as improve measures of recidivism risk (e.g., J-SOAP II) are warranted. Another future study direction is to compare MACI scores obtained at post-treatment with those from pre-treatment, as this may provide evidence of personality stability or demonstrate the impact of treatment on personality factors.

REFERENCES

Aldenderfer, M. S., & Blashfield, R. K. (1984). *Cluster analysis*. Beverly Hills, CA: Sage University Papers.

American Psychiatric Association. (1952). *Diagnostic and statistical manual of mental disorders*. Washington, DC: Author.

American Psychiatric Association. (1968). *Diagnostic and statistical manual of mental disorders* (2nd ed.). Washington, DC: Author.

American Psychiatric Association. (1980). *Diagnostic and statistical manual of mental disorders* (3rd ed.). Washington, DC: Author.

American Psychiatric Association. (1987). *Diagnostic and statistical manual of mental disorders* (3rd ed. rev.). Washington, DC: Author.

American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.

Anderberg, M. R. (1973). *Cluster analysis for applications*. New York: Academic Press.

Armsden, G. C., & Greenberg, M. T. (1987). The inventory of parent and peer attachment: Individual differences and their relationship to psychological well-being in adolescence. *Journal of Youth and Adolescence, 16,* 427-454.

Awad, G. A., & Saunders, E. B. (1989). Adolescent child molesters: Clinical observations. *Child Psychiatry and Human Development, 19,* 195-206.

Awad, G. A., & Saunders, E. B. (1991). Male adolescent sexual assaulters: Clinical observations. *Journal of Interpersonal Violence, 6,* 446-460.

Araji, S. (1997). *Sexually aggressive children: Coming to understand them*. Thousand Oaks, CA: Sage.

Bailey, K. D. (1994). *Typologies and taxonomies: An introduction to classification techniques*. Thousand Oaks, CA: Sage.

Becker, J. V. (1998). What we know about the characteristics and treatment of adolescents who have committed sexual offenses. *Child Maltreatment, 3,* 317 329.

Becker, J. V., & Hunter, J. A. (1993). Aggressive sex offenders. *Child and Adolescent Psychiatric Clinics of North America, 2,* 477-487.

Becker, J. V., & Hunter, J. A. (1997). Understanding and treating child and adolescent sexual offenders. *Advances in Clinical Child Psychology, 19,* 177-197.

Becker, J. V., Kaplan, M. S., Tenke, C. E., & Tartaglini, A. (1991). The incidence of depressive symptomatology in juvenile sex offenders with a history of abuse. *Child Abuse and Neglect, 15,* 531-536.

Becker, J. V., & Murphy, W. D. (1998). What we know and do not know about assessing and treating sex offenders. *Psychology, Public Policy, and the Law, 4,* 116-137.

Bijleveld, C., & Hendriks, J. (2003). Juvenile sex offenders: Differences between group and solo offenders. *Psychology, Crime, & Law, 9,* 237-245.

Bourke, M. L., & Donohue, B. (1996). Assessment and treatment of juvenile sex offenders: An empirical review. *Journal of Child Sexual Abuse, 5,* 47-70.

Bowlby, J. (1973). *Attachment and loss, volume 3*. New York: Basic Books.

Brandt, J. R., Kennedy, W. A., Patrick, C. J., & Curtin, J. J. (1997). Assessment of psychopathy in a population of incarcerated adolescent offenders. *Psychological Assessment, 9,* 429-435.

Bumby, E. M., & Bumby, N. H. (1997). Adolescent female sexual offenders. In B. K. Schwartz & H. R. Cellini (Eds.), *The sex offender: Vol. 2. New insights, treatment innovations and legal developments* (pp. 10.1-10.16). Kingston, NJ: Civic Research Institute.

Burton, D. L. (2000). Were adolescent sex offenders children with sexual behavior problems? *Sexual Abuse: A Journal of Research & Treatment, 12,* 37-48.

Butz, C., & Spaccarelli, S. (1999). Use of physical force as an offense characteristic in subtyping juvenile sex offenders. *Sexual Abuse: A Journal of Research and Treatment, 11,* 217-245.

Caldwell, M. F. (2002). What we do not know about juvenile sexual reoffense risk. *Child Maltreatment, 7,* 291-302.

Carpenter, D. R., Peed, S. F., & Eastman, B. (1995). Personality characteristics of adolescent sexual offenders: A pilot study. *Sexual Abuse: A Journal of Research and Treatment, 7,* 195-203.

Catchpole, R. E. H., & Gretton, H. M. (2003). The predictive validity of risk assessment with violent young offenders: A 1-year examination of criminal outcome. *Criminal Justice and Behavior, 30,* 688-708.

Cichetti, D., & Rogosch, F. A. (2002). A developmental psychopathology perspective on adolescence. *Journal of Consulting & Clinical Psychology, 70,* 6-20.

Clark, M., & Grier, P. (1995). Using the Multiphasic Sex Inventory with child molesters. *Psychological Reports, 77,* 623-625.

Davis, G. E., & Leitenberg, H. (1987). Adolescent sex offenders. *Psychological Bulletin, 8,* 105-120.

Efta-Breitbach, J., & Freeman, K. A. (2004b). Recidivism and resilience in juvenile sexual offenders: An analysis of the literature. *Journal of Child Sexual Abuse, 13,* 257-279.

Fehrenbach, P. A., Smith, W., Monastersky, C., & Deisher, R. W. (1986). Adolescent sexual offenders: Offender and offense characteristics. *American Journal of Orthopsychiatry, 56,* 225-233.

Flitton, A. (1999). *The utility of the Rorschach Inkblot Method in the assessment of adolescent sex offenders*. Unpublished doctoral dissertation, California School of Professional Psychology, San Diego.

Flitton, A. R., & Brager, R. C. (2002). Juvenile sex offenders: Assessment and treatment. In N. G. Ribner (Ed.), *The California school of professional psychology handbook of juvenile forensic psychology* (pp. 343-363). San Francisco, CA: Jossey-Bass.

Ford, M. E., & Linney, J. A. (1995). Comparative analysis of juvenile sexual offenders, violent nonsexual offenders, and status offenders. *Journal of Interpersonal Violence, 10,* 56-70.

Forth, A. E. (2005). Hare Psychopathy Checklist: Youth Version. In T. Grisso, G. Vincent, & D. Seagrave (Eds.), *Mental health screening and assessment in juvenile justice*. New York: Guilford Press.

Forth, A. E., Hart, S. D., & Hare, R. D. (1990). Assessment of psychopathy in male young offenders. *Psychological Assessment: A Journal of Consulting and Clinical Psychology, 2,* 342-344.

Forth, A. E., Kosson, D. S., & Hare, R. D. (2003). *The Hare Psychopathy Checklist: Youth Version*. Toronto: Multi-Health Systems.

Fulero, S. M. (1995). Review of the Hare Psychopathy Checklist-Revised. In J. C. Conoley & J. C. Impara (Eds.), *Twelfth mental measurements yearbook* (pp. 453-454). Lincoln, NE: Buros Institute.

Geer, T. M, Becker, J. V., Gray, S. R., & Krauss, D. (2001). Predictors of treatment completion in a correctional sex offender treatment program. *International Journal of Offender Therapy and Comparative Criminology, 45,* 302-313.

Gilby, R., Wolf, L., & Goldberg, B. (1989). Mentally retarded adolescent sex offenders: A survey and pilot study. *Canadian Journal of Psychiatry, 34,* 542-548.

Gough, H. G. (1987). *California Psychological Inventory: Administrator's guide*. Palo Alto, CA: Consulting Psychologists Press.

Graves, R. B., Openshaw, D. K., Ascione, F. R., & Ericksen, S. L. (1996). Demographic and parental characteristics of youthful sexual offenders. *International Journal of Offender Therapy and Comparative Criminology, 40,* 300-317.

Green, P. E., & Carroll, J. D. (1978). *Mathematical tools for applied multivariate analysis*. New York: Academic Press.

Gretton, H. M., McBride, M., Hare, R. D., Shaughnessy, R., & Kumka, G. (2001). Psychopathy and recidivism in adolescent sex offenders. *Criminal Justice and Behavior, 28,* 427-449.

Gries, L. T., Goh, D. S., & Cavanaugh, J. (1996). Factors associated with disclosure during child sexual abuse assessment. *Journal of Child Sexual Abuse, 5,* 1-20.

Hagan, M. P., & Cho, M. E. (1996). A comparison of treatment outcomes between adolescent rapists and child sexual offenders. *International Journal of Offender Therapy and Comparative Criminology, 40,* 113-122.

Hagan, M. P., & Gust-Brey, K. L. (1999). A ten-year longitudinal study of adolescent rapists upon return to the community. *International Journal of Offender Therapy and Comparative Criminology, 43,* 448-458.

Hair, J. F., & Black, W. C. (2000). Cluster analysis. In L. G. Grimm & P. R. Yarnold (Eds.), *Reading and understanding more multivariate statistics* (pp. 147-205). Washington, DC: American Psychological Association.

Hanson, R. K., Gibson, A., Harris, A., Marques, J., Murphy, W., Quinsey, V., et al. (2002). First report of the collaborative outcome data project on the effectiveness of psychological treatment for sex offenders. *Sexual Abuse: A Journal of Research and Treatment, 14,* 169-194.

Hare, R. D. (2003). *The Hare Psychopathy Checklist-Revised* (2nd ed.). Toronto: Multi Health Systems.

Hart, R. L. (1993). Diagnosis of disruptive behavior disorders using the Millon Adolescent Personality Inventory. *Psychological Reports, 73,* 895-914.

Hathaway, S. R., & McKinley, J. C. (1943). *Minnesota Multiphasic Personality Inventory Manual*. New York: Psychological Corp.

Hecker, J., Scoular, J., Righthand, S., & Nangle, D. (2002, October). *Predictive validity of the J-SOAP over 10-plus years: Implications for risk assessment*. Paper presented at the Annual Meeting of the Association for Treatment of Sexual Abusers, Montreal, Quebec, Canada.

Hiatt, M. D., & Cornell, D. G. (1999). Concurrent validity of the Millon Adolescent Clinical Inventory. *Journal of Personality Assessment, 73,* 64-79.

Hsu, L. K. G., & Starzynski, J. (1990). Adolescent rapists and adolescent child sexual assaulters. *International Journal of Offender Therapy and Comparative Criminology, 34,* 23-30.

Hunter, J. A. (2000). Understanding juvenile offenders: Research findings & guidelines for effective management & treatment. *Juvenile Justice Fact Sheet*. Charlottesville, VA: University of Virginia, Institute of Law, Psychiatry, & Public Policy.

Hunter, J. A., Figueredo, A. J., Malamuth, N. M., & Becker, J. V. (2003). Juvenile sex offenders: Toward the development of a typology. *Sexual Abuse: A Journal of Research and Treatment, 15,* 27-48.

Hunter, J. A., Hazelwood, R. R., & Slesinger, D. (2000). Juvenile-perpetrated sex crimes: Patterns of offending and predictors of violence. *Journal of Research and Treatment, 15,* 27-47.

Kahn, T. J., & Chambers, H. J. (1991). Assessing reoffense risk with juvenile sexual offenders. *Child Welfare, 70,* 333-345.

Kalichman, S. C., Henderson, M. C., Shealy, L. S., & Dwyer, M. (1992). Psychometric properties of the Multiphasic Sex Inventory in assessing sex offenders. *Criminal Justice and Behavior, 19,* 384-396.

Kalmus, E., & Beech, A. R. (2004). Forensic assessment of sexual interest: A review. *Aggression and Violent Behavior, 10,* 193-217.

Kaufman, K. L., Hilliker, D. R., & Daleiden, E. L. (1996). Subgroup differences in the modus operandi of adolescent sexual offenders. *Child Maltreatment, 1,* 17-24.

Knight, R. A., & Prentky, R. A. (1993). Exploring characteristics for classifying juvenile sex offenders. In H. E. Barbaree, W. L. Marshall, & S. M. Hudson (Eds.), *The juvenile sex offender* (pp. 45-83). New York: Guilford Press.

Kobayashi, J., Sales, B. D., Becker, J. V., Figueredo, A. J., & Kaplan, M. S. (1995). Perceived parental deviance, parent-child bonding, child abuse, and child sexual aggression. *Sexual Abuse: A Journal of Research & Treatment, 7,* 25-43.

Lambie, I., & McCarthy, J. (2004). Interviewing strategies with sexually abusive youth. *Journal of Child Sexual Abuse, 13,* 107-123.

Langstrom, N., & Grann, M. (2000). Risk for criminal recidivism among young sex offenders. *Journal of Interpersonal Violence, 15,* 855-871.

McCann, J. T. (1999). *Assessing adolescents with the MACI: Using the Millon Adolescent Clinical Inventory*. New York: John Wiley & Sons, Inc.

McIntyre, R. M., & Blashfield, R. K. (1980). A nearest-centroid technique for evaluating the minimum-variance clustering procedure. *Multivariate Behavioral Research, 15,* 225-238.

Miller, F. G. (1994). *Substance abuse subtle screening inventory (SASSI) manual.* Bloomington, IN: SASSI Institute.

Miller, F. G., Renn, W. R., & Lazowski, L. E. (2001). *The adolescent substance abuse subtle screening inventory – second edition (SASSI-A2): User's guide*. Bloomington, IN: Baugh Enterprises, Incorporated.

Milligan, G. W. (1980). An examination of the effect of six types of error perturbation on fifteen clustering algorithms. *Psychometrika, 45,* 325-342.

Milligan, G. W., & Cooper, M. C. (1985). An examination of procedures for determining the number of clusters in a data set. *Psychometricka, 50,* 159-179.

Millon, T. (1993). *Millon Adolescent Clinical Inventory*. Minneapolis, MN: National Computer Systems.

Millon, T., Green, C. J., & Meagher, R. B. (1982). *Millon Adolescent Personality Inventory manual*. Minneapolis, MN: National Computer Systems.

Monto, M., Zgourides, G., & Harris, R. (1998). Empathy, self-esteem, and the adolescent sexual offender. *Sexual Abuse: A Journal of Research and Treatment, 10,* 127-140.

Nichols, H., & Molinder, I. (1984). *Manual for the Multiphasic Sex Inventory*. Tacoma, WA: Criminal and Victim Psychology Specialists.

Nichols, H., & Molinder, I. (2001). *Multiphasic Sex Inventory: Manual*. Tacoma, WA: Nichols and Molinder Assessments.

O'Brien, M. (1991). Taking sibling incest seriously. In M. Q. Patton (Ed.), *Family sexual abuse* (pp. 75-92). Newbury Park, CA: Sage.

O'Brien, M., & Bera, W. (1986). Adolescent sexual offenders: A descriptive typology. *Preventing Sexual Abuse, 1,* 1-4.

O'Neill, M. L., Lidz, V., & Heilbrun, K. (2003). Adolescents with psychopathic characteristics in a substance abusing cohort: Treatment process and outcomes. *Law and Human Behavior, 27,* 299-313.

Oxnam, P., & Vess, J. (2006). A personality-based typology of adolescent sexual offenders using the Millon Adolescent Clinical Inventory. *New Zealand Journal of Psychology, 35,* 36-44.

Prentky, R. A., & Burgess, A. W. (2000). *Forensic management of sexual offenders*. New York: Kluwer Academic/Plenum Publishers.

Prentky, R. A., Harris, B., Frizzell, K., & Righthand, S. (2000). An actuarial procedure for assessing risk with juvenile sexual offenders. *Sexual Abuse: A Journal of Research and Treatment, 12,* 71-93.

Punj, G., & Stewart, D. W. (1983). Cluster analysis in marketing research: Review and suggestions for application. *Journal of Marketing Research, 20,* 134-148.

Rasmussen, L. A. (2004). Differentiating youth who sexually abuse: Applying a multidimensional framework when assessing and treating subtypes. *Journal of Child Sexual Abuse, 13,* 57-82.

Ray, J. A., & English, D. J. (1995). Comparison of female and male children with sexual behavior problems. *Journal of Youth & Adolescence, 24,* 439-451.

Reynolds, W. M. (1987). *Reynolds adolescent depression scale: Professional manual.* Psychological Assessment Resources, Inc.

Rich, P. (2003). *Understanding, assessing, and rehabilitating juvenile sex offenders*. Hoboken, NJ: John Wiley & Sons.

Rich, P. (2004, April). *Understanding and treating juvenile sex offenders*. Paper presented at a training program for youth correctional staff and mental health professionals sponsored by the Juvenile Accountability Incentive Block Grants Program through to Alabama Department of Economic and Community Affairs, Mt. Meigs, AL.

Richardson, G., Kelly, T. P., Bhate, S. R., & Graham, F. (1997). Group differences in abuser and abuse characteristics in a British sample of sexually abusive adolescents. *Sexual Abuse: A Journal of Research and Treatment, 9,* 239-257.

Righthand, S., Prentky, R., Knight, R., Carpenter, E., Hecker, J. E., & Nangle, D. (2005). Factor structure and validation of the juvenile sex offender assessment protocol (J-SOAP). *Sexual Abuse: A Journal of Research and Treatment, 17,* 13-30.

Righthand, S., & Welch, C. (2001). *Juveniles who have sexually offended*. Washington, DC: Office of Juvenile Justice & Delinquency Prevention.

Righthand, S., & Welch, C. (2004). Characteristics of youth who sexually offend. *Journal of Child Sexual Abuse, 13,* 15-32.

Righthand, S., Welch, C., Carpenter, E. M., Young, G. S., & Scoular, R. J. (2001). *Sex offending by Maine youth: Their offenses and characteristics (Part I & Part II)*. Augusta, ME: Department of Corrections and Department of Human Services.

Rogers, R., Cashel, M. L., Johansen, J., Sewell, K. W., & Gonzalez, C. (1997). Evaluation of adolescent offenders with substance abuse: Validation of the SASSI with conduct-disordered youth. *Criminal Justice and Behavior, 24,* 114-128.

Ryan, G. D. (1999). Treatment of sexually abusive youth: The evolving consensus. *Journal of Interpersonal Violence, 14,* 422-436.

Ryan, G., Miyoshi, T. J., Metzner, J. L., Krugman, R. D., & Fryer, G. E. (1996). Trends in a national simple of sexually abusive youths. *Journal of the American Academy of Child and Adolescent Psychiatry, 35,* 17-25.

Saunders, E. B., Awad, G. A., & White, G. (1986). Male adolescent sexual offenders: The offender and the offense. *Canadian Journal of Psychiatry, 31,* 542-549.

Schlank, A. M. (1995). The utility of the MMPI and the MSI for identifying a sexual offender typology. *Sexual Abuse: A Journal of Research and Treatment, 7,* 185-194.

Seghorn, T. K., Prentky, R. A., & Boucher, R. J. (1987). Childhood sexual abuse in the lives of sexually aggressive offenders. *Journal of the American Academy of Child and Adolescent Psychiatry, 26,* 262-267.

Shephard, R. (1966). Metric structures in ordinal data. *Journal of Mathematical Psychology, 3,* 287-315.

Simkins, L., Ward, W., Bowman, S., & Rinck, C. M. (1989). The Multiphasic Sex Inventory: Diagnosis and prediction of treatment response in child sexual abusers. *Annals of Sex Research, 2,* 205-226.

Skeem, J. L., & Cauffman, E. (2003). View of the downward extension: Comparing the Youth Version of the Psychopathy Checklist with the Youth Psychopathic Traits Inventory. *Behavioral Sciences and the Law, 21,* 737-770.

Smith, W. R., & Monastersky, C. (1986). Assessing juvenile sexual offenders' risk for reoffending. *Criminal Justice and Behavior, 13,* 115-140.

Smith, W. R., Monastersky, C., & Deisher, R. M. (1987). MMPI-based personality types among juvenile sexual offenders. *Journal of Clinical Psychology, 43,* 422-430.

Sneath, P. H. A., & Sokal, R. R. (1973). *Numerical taxonomy*. San Francisco: W. H. Freeman & Co.

Veneziano, C., & Veneziano, L. (2002). Adolescent sex offenders: A review of the literature. *Trauma, Violence, & Abuse, 3,* 247-260.

Vivona, J. M. (2000). Parental attachment style of late adolescents: Qualities of attachment relationships and consequences for adjustment. *Journal of Counseling Psychology, 47,* 316-329.

Walker, D. F., McGovern, S. K., Poey, E. L., & Otis, K. E. (2004). Treatment effectiveness for male adolescent sexual offenders: A meta-analysis and review. *Journal of Child Sexual Abuse, 13,* 281-293.

Weinrott, M. (1996). *Juvenile sexual aggression: A critical review*. Boulder, CO: University of Colorado, Institute of Behavioral Sciences, Center for the Study and Prevention of Violence.

Wieckowski, E., Hartsoe, P., Mayer, A., & Shortz, J. (1998). Deviant sexual behavior in children and young adolescents: Frequency and patterns. *Sexual Abuse: A Journal of Research and Treatment, 10,* 293-303.

Witt, P. H., Bosley, J. T., & Hiscox, S. P. (2002). Evaluation of juvenile sex offenders. *Journal of Psychiatry and Law, 30,* 569-592.

Worling, J. R. (1995). Adolescent sex offenders against females: Differences based on the age of their victims. *International Journal of Offender Therapy and Comparative Criminology, 39,* 276-293.

Worling, J. R. (2001). Personality-based typology of adolescent male sexual offenders: Differences in recidivism rates, victim-selection characteristics, and personal victimization histories. *Sexual Abuse: A Journal of Research and Treatment, 13,* 149-166.

Table 1

Items on the Juvenile Sex Offender Assessment Protocol (J-SOAP)

Factor 1: Sexual Drive/Sexual Preoccupation
Prior charged sex offenses
Duration of sex offense history
Evidence of sexual preoccupation
Degree of planning
Sexualization of the victim
Factor 2: Impulsive, Antisocial Behavior
Caregiver consistency/instability
History of expressed anger
School behavior problems (Kindergarten to 8th grade)
Suspensions or expulsions (Kindergarten to 8th grade)
History of Conduct Disorder before age 10
Antisocial behavior (ages 10 to 17)
Charged or arrested before age 16
Multiple types of offenses
Impulsivity
History of substance abuse
History of parental substance abuse
Factor 3: Clinical Intervention
Accepts responsibility for offenses
Internal motivation for change
Understands sexual assault cycle and relapse prevention
Evidence of empathy, remorse, guilt
Absence of cognitive distortions
Factor 4: Community Stability (past 6 months)
Evidence of poorly managed anger in the community
Stability of current living situation
Stability of school
Support systems in community
Quality of peer relationships

Table 2

Items on the Juvenile Sex Offender Assessment Protocol II (J-SOAP II)

Factor 1: Sexual Drive/Sexual Preoccupation
- Prior charged sex offenses (same as J-SOAP question 1)
- Number of Sexual Abuse Victims
- Male child victim
- Duration of sex offense history (same as J-SOAP question 2)
- Degree of planning in sex offenses (same as J-SOAP question 4)
- Sexualized aggression
- Sexual drive and preoccupation (same as J-SOAP question 3)
- Sexual victimization history

Factor 2: Impulsive, Antisocial Behavior
- Caregiver consistency (same as J-SOAP question 6)
- Pervasive anger (same as J-SOAP question 7)
- School behavior problems (same as J-SOAP question 8)
- History of conduct disorder before age 10 (same as J-SOAP question 10)
- Juvenile antisocial behavior ages 10 to 17 (same as J-SOAP question 11)
- Ever charged or arrested before age 16 (same as J-SOAP question 12)
- Multiple types of offenses (same as J-SOAP question 13)
- History of physical assault and/or exposure to domestic violence

Factor 3: Clinical Intervention
- Accepting responsibility for offenses (same as J-SOAP question 17)
- Internal motivation for change (same as J-SOAP question 18)
- Understands risk factors/applies risk management strategies (same as J-SOAP question 19)
- Empathy (J-SOAP question 20 split)
- Remorse and guilt (J-SOAP question 20 split)
- Cognitive distortions (same as J-SOAP question 21)
- Quality of peer relationships (same as J-SOAP question 26)

Factor 4: Community Stability (past 6 months)
- Management of sexual urges and desire
- Management of anger (same as J-SOAP question 22)
- Stability of current living situation (same as J-SOAP question 23)
- Stability in school (same as J-SOAP question 24)
- Evidence of positive support systems (same as J-SOAP question 25)

Table 3

Millon Adolescent Clinical Inventory (MACI) Scales

Personality Patterns Scales

1. Introversive
2. Inhibited
3. Doleful
4. Submissive
5. Dramatizing
6. Egotistic
7. Unruly
8. Forceful
9. Conforming
10. Oppositional
11. Self-Demeaning
12. Borderline Tendencies

Expressed Concerns Scales

13. Identity Diffusion
14. Self-Devaluation
15. Body Disapproval
16. Sexual Discomfort
17. Peer Insecurity
18. Social Insensitivity
19. Family Discord
20. Childhood Abuse

Clinical Syndromes Scales

21. Eating Dysfunctions
22. Substance Abuse
23. Delinquency Predisposition
24. Impulsive Propensity
25. Anxious Feelings
26. Depressive Affect
27. Suicidal Tendency

Validity Scales

28. Disclosure
29. Desirability
30. Debasement

Table 3 (continued)

Millon Adolescent Clinical Inventory (MACI) Scales

Reliability Scale
31. Reliability

Table 4

Categorical Dependent Variables Examined by Chi-Square Analyses

Sexual abuse victimization history (yes or no)
Sexual abuse relationship to 1st perpetrator (parent, sibling, other relative, family friend, stranger, other)
Sexual abuse victimization (none, abused by one perpetrator, abused by 2 or more perpetrators)
Physical abuse victimization history (yes or no)
Physical abuse relationship to 1st perpetrator (parent, sibling, other relative, family friend, stranger, other)
Physical abuse victimization (none, abused by one perpetrator, abused by 2 or more perpetrators)
History of neglect (yes or no)
History of trauma (yes or no)
Global trauma (None, 1 to 3 incidents, 4 to 7 incidents)
Victim age relative to offender ever (no information, victim younger by 4 or more years, peer age or older victim, mixed pattern)
Victim gender ever (male, female)
Index offense victim age relative to offender on index offense (victim younger by 4 or more years, peer age or older victim)
Index offense physical intrusiveness (none listed, fondling, penetration, oral sex, 2 types of sexual contact, 3 or more types of sexual contact)
Index offense victim gender (male, female)
Index offense offender/victim relationship (sibling, other relative, friend/peer, girlfriend, stranger, animal)
Index offense use of restraint (yes, no)

Table 5

Continuous Dependent Variables Examined by One-Way Analyses of Variance (ANOVA)

Comprehensive clinical interview variables
- Offender age
- Age of 1st sexual abuse victimization
- Age of 1st physical abuse victimization
- Number of admitted sexual offenses
- Number of victims
- 1st victim age
- 2nd victim age

HARE
- Total score
- Factor 1 score
- Factor 2 score

MSI
- Social/sexual desirability
- Sexual obsession
- Lie
- Cognitive distortions and immaturity
- Justification
- Treatment attitudes
- Child molest
- Rape
- Exhibitionism
- Fetish
- Voyeurism
- Obscene call
- Bondage and discipline
- Sado-masochism
- Physical disabilities
- Impotence
- Sex apprehension-confidence
- Sex knowledge and beliefs
- Sexual history

J-SOAP
- Pre-treatment factor 1 (sexual drive/preoccupation)
- Pre-treatment factor 2 (impulsive/antisocial behavior)
- Post-treatment factor 3 (intervention)
- Post-treatment factor 4 (community adjustment)

Table 5 (continued)

Continuous Dependent Variables Examined by One-Way Analyses of Variance (ANOVA)

J-SOAP I
Pre-post dynamic score
J-SOAP II
Pre-treatment factor 1 (sexual drive/preoccupation)
Pre-treatment factor 2 (impulsive/antisocial behavior)
Post-treatment factor 3 (intervention)
Post-treatment factor 4 (community adjustment)
Pre-post dynamic score
SASSI & SASSI-A2
Face valid alcohol score
Face valid other drug score
IPPA
Parental trust
Parental communication
Parental alienation
Peer trust
Peer communication
Peer alienation
Post-Treatment Therapist/Caseworker Questionnaire
Accountability
Self-control
Healthy masculinity
Relapse prevention
Victim empathy
Quality of engagement
Positive attitude toward therapy
Group participation
Prognostic belief sexual offenses
Prognostic belief criminal offenses
Positive feelings toward youth
Negative feelings toward youth
Externalizing and Internalizing Symptoms Factors

Table 6

Two-Factor Solution (Internalizing Variables)

Scale	KSADSdep	KSADSanx	KSADSobs	JIwithdep	JIsocanx	RADS
KSADSdep	1.0	.22***	.06	.26***	.15**	.32***
KSADSanx		1.0	.14**	.15**	.21***	.15**
KSADSobs			1.0	.02	-.02	.09*
JIwithdep				1.0	.52***	.54***
JIsocanx					1.0	.48***
RADS						1.0

Note. One-tailed test of significance.

*$p<.05$. **$p<.005$, ***$p<.001$

Table 7

Internalizing Group Correlation Matrix

Scale	KSADSdep	KSADSanx	JIwithdep	JIsocanx	RADS
KSADSdep	1.0	.22***	.26***	.15**	.32***
KSADSanx		1.0	.15**	.21***	.15**
JIwithdep			1.0	.52***	.54***
JIsocanx				1.0	.48***
RADS					1.0

Note. One-tailed test of significance.

***p*<.005, ****p*<.001

Table 8

Externalizing Group Correlation Matrix

Scale	HAREang	HAREimp	KSADSadhd	KSADSodd	KSADScd	JIagg
HAREang	1.0	.50***	.41***	.55***	.48***	.40***
HAREimp		1.0	.47***	.42***	.41***	.27***
KSADSadhd			1.0	.55***	.44***	.36***
KSADSodd				1.0	.49***	.33***
KSADScd					1.0	.29***
JIagg						1.0

Note. One-tailed test of significance.

***p<.001

Table 9

Internalizing Variables Factor Matrix

	Factor 1
KSADSdep	.36
KSADSanx	.24
JIwithdep	.75
JIsocanx	.67
RADS	.73

Table 10

Externalizing Variables Factor Matrix

	Factor 1
HARE ang	.72
HAREimp	.63
KSADSadhd	.68
KSADSodd	.75
KSADScd	.65
JIagg	.48

Table 11

Full Sample Cluster MACI Base Rate Means

	One	Two	Three	Four	Five	ANOVA	
MACI Scale	(*N*=42)	(*N*=171)	(*N*=94)	(*N*=83)	(*N*=50)	*F (4, 435)*	*p*
Introversive	74.79[d]	49.56[b]	67.03[c]	37.08[a]	62.68[c]	77.52	<.001
(*SD*)	(12.88)	(14.65)	(14.93)	(15.76)	(11.38)		
Inhibited	66.48[c]	50.99[b]	76.45[d]	31.72[a]	56.70[b]	114.19	<.001
(*SD*)	(11.10)	(15.93)	(13.14)	(13.17)	(16.62)		
Doleful	70.79[b]	36.22[a]	70.09[b]	41.00[a]	76.80[b]	124.26	<.001
(*SD*)	(5.72)	(15.54)	(15.37)	(22.57)	(11.67)		
Submissive	45.14[a]	70.63[c]	68.06[c]	52.59[b]	49.06[ab]	89.56	<.001
(*SD*)	(13.04)	(11.16)	(10.52)	(9.68)	(12.04)		
Dramatizing	28.98[a]	59.88[d]	41.71[b]	69.89[e]	50.44[c]	106.47	<.001
(*SD*)	(13.22)	(13.15)	(13.11)	(12.65)	(8.76)		
Egotistic	27.45[a]	56.78[d]	37.81[b]	62.86[e]	48.40[c]	94.37	<.001
(*SD*)	(13.01)	(12.84)	(14.29)	(9.35)	(9.66)		
Unruly	68.19[c]	42.35[a]	49.60[b]	74.08[c]	78.30[cd]	146.27	<.001
(*SD*)	(9.95)	(13.32)	(13.43)	(12.60)	(10.88)		

Table 11 (continued)

Full Sample Cluster MACI Base Rate Means

	One	Two	Three	Four	Five	ANOVA	
MACI Scale	(*N*=42)	(*N*=171)	(*N*=94)	(*N*=83)	(*N*=50)	*F (4, 435)*	*p*
Forceful	59.36[c]	18.36[a]	24.57[a]	39.90[b]	58.40[c]	101.61	<.001
(*SD*)	(18.49)	(12.09)	(18.90)	(17.81)	(19.14)		
Conforming	27.21[a]	67.18[d]	52.37[c]	54.75[c]	37.82[b]	162.11	<.001
(*SD*)	(9.42)	(13.95)	(7.20)	(7.71)	(7.33)		
Oppositional	77.64[d]	42.23[a]	66.07[c]	55.94[b]	74.94[d]	129.43	<.001
(*SD*)	(6.71)	(14.82)	(8.95)	(14.75)	(6.39)		
Self-Demeaning	66.86[b]	29.58[a]	61.67[b]	29.43[a]	63.26[b]	161.17	<.001
(*SD*)	(12.95)	(13.09)	(15.31)	(13.69)	(14.14)		
Borderline Tendency	63.95[d]	21.11[a]	46.72[c]	32.64[b]	67.40[d]	178.26	<.001
(*SD*)	(12.79)	(11.20)	(15.67)	(14.93)	(14.33)		
Identity Diffusion	79.07[d]	33.31[a]	53.31[b]	37.49[a]	62.24[c]	136.66	<.001
(*SD*)	(16.12)	(10.68)	(16.92)	(13.24)	(11.72)		
Self-Devaluation	92.69[d]	33.95[a]	72.62[c]	29.88[a]	64.32[b]	208.23	<.001
(*SD*)	(13.41)	(15.45)	(18.06)	(13.54)	(18.99)		

Table 11 (continued)

Full Sample Cluster MACI Base Rate Means

	One	Two	Three	Four	Five	ANOVA	
MACI Scale	(*N*=42)	(*N*=171)	(*N*=94)	(*N*=83)	(*N*=50)	*F (4, 435)*	*p*
Body Disapproval	63.00[d]	19.54[ab]	48.06[c]	14.05[a]	27.80[b]	82.02	<.001
(*SD*)	(24.16)	(15.65)	(26.13)	(10.60)	(18.11)		
Sexual Discomfort	42.33[a]	67.72[d]	60.66[c]	49.43[b]	42.68[a]	60.42	<.001
(*SD*)	(13.15)	(15.27)	(13.18)	(11.98)	(11.11)		
Peer Insecurity	82.26[d]	50.26[b]	71.16[c]	33.70[a]	55.14[b]	64.77	<.001
(*SD*)	(13.94)	(18.14)	(22.83)	(17.09)	(23.54)		
Social Insensitivity	59.64[c]	52.33[b]	41.81[a]	70.83[d]	68.58[d]	76.55	<.001
(*SD*)	(14.26)	(11.18)	(13.62)	(11.24)	(14.95)		
Family Discord	75.33[c]	46.11[a]	54.45[b]	72.39[c]	75.06[c]	73.48	<.001
(*SD*)	(11.93)	(16.22)	(18.34)	(11.97)	(13.59)		
Childhood Abuse	77.95[c]	32.11[a]	58.80[b]	26.63[a]	55.48[b]	65.40	<.001
(*SD*)	(22.27)	(23.29)	(22.28)	(16.94)	(22.74)		
Eating Dysfunctions	52.57[d]	13.99[a]	36.69[c]	12.57[a]	27.24[b]	84.81	<.001
(*SD*)	(22.51)	(10.49)	(19.55)	(10.94)	(17.52)		

Table 11 (continued)

Full Sample Cluster MACI Base Rate Means

	One	Two	Three	Four	Five	ANOVA	
MACI Scale	(*N*=42)	(*N*=171)	(*N*=94)	(*N*=83)	(*N*=50)	*F (4, 435)*	*p*
Substance Abuse	83.83[e]	22.90[a]	41.62[b]	56.87[c]	70.44[d]	123.36	<.001
(*SD*)	(23.91)	(15.80)	(18.49)	(21.87)	(25.66)		
Delinquent Predisp.	59.19[c]	53.09[b]	46.52[a]	78.69[d]	76.00[d]	98.86	<.001
(*SD*)	(12.03)	(12.15)	(12.68)	(14.09)	(15.29)		
Impulsive Propensity	74.29[d]	33.33[a]	46.60[b]	64.64[c]	82.10[e]	144.98	<.001
(*SD*)	(11.38)	(15.42)	(17.66)	(17.24)	(12.08)		
Anxious Feelings	57.07[a]	78.97[b]	73.76[b]	50.76[a]	49.56[a]	62.57	<.001
(*SD*)	(13.50)	(18.24)	(19.58)	(12.57)	(13.60)		
Depressive Affect	97.79[d]	52.06[b]	84.63[c]	39.81[a]	77.88[c]	138.17	<.001
(*SD*)	(7.74)	(21.29)	(12.16)	(19.87)	(13.22)		
Suicidal Tendency	74.55[c]	19.75[a]	45.89[b]	20.08[a]	44.68[b]	135.82	<.001
(*SD*)	(18.54)	(10.10)	(22.78)	(11.85)	(18.43)		

Note. Mean cluster scores that share a common superscript in each row indicate differences were not significant at the $p < .05$ level on Tukey post hoc *t* tests.

Table 12

Fifty Percent Random Sample Cluster MACI Base Rate Means

	One	Two	Three	Four	Five	ANOVA	
MACI Scale	(*N*=42)	(*N*=54)	(*N*=33)	(*N*=55)	(*N*=37)	*F (4, 216)*	*p*
Introversive	64.50	46.13	34.18	67.15	53.46	35.30	<.001
(*SD*)	(15.78)	(14.84)	(14.59)	(15.01)	(12.57)		
Inhibited	63.00	55.54	27.00	74.20	47.81	56.20	<.001
(*SD*)	(14.80)	(18.45)	(9.06)	(13.96)	(15.25)		
Doleful	74.36	33.33	38.18	71.22	44.49	64.14	<.001
(*SD*)	(10.50)	(14.38)	(21.10)	(13.72)	(22.08)		
Submissive	46.93	75.61	48.39	71.02	62.65	79.34	<.001
(*SD*)	(10.69)	(8.82)	(10.12)	(9.44)	(9.91)		
Dramatizing	40.45	62.83	71.73	41.53	56.00	38.64	<.001
(*SD*)	(16.50)	(17.23)	(12.82)	(13.31)	(6.48)		
Egotistic	36.60	57.31	65.70	37.47	55.24	39.71	<.001
(*SD*)	(14.33)	(15.76)	(7.85)	(14.41)	(9.83)		

Table 12 (continued)

Fifty Percent Random Sample Cluster MACI Base Rate Means

	One	Two	Three	Four	Five	ANOVA	
MACI Scale	(*N*=42)	(*N*=54)	(*N*=33)	(*N*=55)	(*N*=37)	*F (4, 216)*	*p*
Unruly	71.64	37.67	79.52	45.29	54.62	85.28	<.001
(*SD*)	(11.02)	(13.77)	(11.97)	(11.44)	(13.75)		
Forceful	57.29	17.78	47.36	18.29	26.70	53.56	<.001
(*SD*)	(19.68)	(12.22)	(20.08)	(15.77)	(14.12)		
Conforming	34.52	74.33	52.21	53.55	55.14	94.32	<.001
(*SD*)	(11.04)	(13.20)	(8.62)	(8.06)	(6.94)		
Oppositional	75.71	37.76	58.52	65.09	52.05	74.48	<.001
(*SD*)	(6.93)	(11.83)	(14.03)	(8.70)	(15.54)		
Self-Demeaning	68.31	29.58	26.45	63.73	32.03	108.08	<.001
(*SD*)	(12.27)	(11.41)	(11.19)	(15.28)	(13.49)		
Borderline Tendency	65.86	18.15	31.64	45.33	32.22	66.30	<.001
(*SD*)	(14.69)	(11.09)	(14.38)	(18.24)	(15.29)		
Identity Diffusion	63.67	27.87	37.88	54.60	42.86	42.95	<.001
(*SD*)	(21.93)	(8.76)	(10.49)	(16.38)	(12.02)		

Table 12 (continued)

Fifty Percent Random Sample Cluster MACI Base Rate Means

	One	Two	Three	Four	Five	ANOVA	
MACI Scale	(*N*=42)	(*N*=54)	(*N*=33)	(*N*=55)	(*N*=37)	*F (4, 216)*	*p*
Self-Devaluation	80.05	35.91	26.08	74.07	38.35	86.72	<.001
(*SD*)	(18.67)	(17.02)	(11.80)	(20.89)	(13.28)		
Body Disapproval	48.55	26.19	14.27	46.11	18.86	22.78	<.001
(*SD*)	(27.08)	(19.44)	(9.93)	(26.19)	(13.83)		
Sexual Discomfort	46.02	74.63	47.39	59.76	56.24	29.04	<.001
(*SD*)	(17.01)	(17.91)	(10.55)	(12.14)	(12.88)		
Peer Insecurity	66.50	49.46	31.03	71.95	49.46	24.64	<.001
(*SD*)	(24.63)	(18.69)	(12.71)	(24.49)	(19.26)		
Social Insensitivity	61.17	48.22	75.97	40.73	60.62	52.29	<.001
(*SD*)	(12.57)	(18.62)	(10.90)	(12.23)	(11.53)		
Family Discord	76.43	43.65	74.55	53.11	54.86	38.04	<.001
(*SD*)	(12.24)	(17.12)	(12.82)	(54.86)	(12.46)		
Childhood Abuse	71.95	31.69	27.64	60.98	32.43	33.32	<.001
(*SD*)	(25.51)	(26.50)	(17.18)	(24.43)	(14.90)		

Table 12 (continued)

Fifty Percent Random Sample Cluster MACI Base Rate Means

	One	Two	Three	Four	Five	ANOVA	
MACI Scale	(*N*=42)	(*N*=54)	(*N*=33)	(*N*=55)	(*N*=37)	*F (4, 216)*	*p*
Eating Dysfunctions	41.62	16.17	10.52	35.27	16.11	31.14	<.001
(*SD*)	(22.52)	(11.54)	(7.90)	(18.94)	(12.81)		
Substance Abuse	78.57	16.67	63.00	36.73	39.24	72.99	<.001
(*SD*)	(27.06)	(12.67)	(20.94)	(17.37)	(16.43)		
Delinquent Predisp.	66.52	49.24	86.48	43.76	61.73	77.73	<.001
(*SD*)	(13.75)	(12.57)	(13.35)	(10.20)	(10.75)		
Impulsive Propensity	76.02	26.17	68.39	43.75	50.43	74.78	<.001
(*SD*)	(13.62)	(10.68)	(14.58)	(17.93)	(20.05)		
Anxious Feelings	51.67	83.19	45.85	80.98	65.08	50.45	<.001
(*SD*)	(11.99)	(16.30)	(12.00)	(19.11)	(15.44)		
Depressive Affect	87.98	53.35	34.00	85.65	55.70	70.44	<.001
(*SD*)	(11.25)	(22.59)	(16.84)	(16.24)	(18.09)		

Table 12 (continued)

Fifty Percent Random Sample Cluster MACI Base Rate Means

	One	Two	Three	Four	Five	ANOVA	
MACI Scale	(*N*=42)	(*N*=54)	(*N*=33)	(*N*=55)	(*N*=37)	*F (4, 216)*	*p*
Suicidal Tendency (*SD*)	61.74 (23.44)	19.61 (12.21)	19.36 (10.41)	46.47 (21.64)	20.57 (10.02)	56.54	<.001

Table 13

Cluster Comparisons between the Full Sample and 50 Percent Random Sample: 1st Cluster

	Cluster 1	
	Full Sample	Random Sample
Same Level of Trait		
Inhibited	66*	63*
Doleful	71*	74*
Unruly	68*	72*
Self-Demeaning	67*	68*
Borderline Tendency	64*	66*
Social Insensitivity	60*	61*
Oppositional	78**	76**
Family Discord	75**	76**
Substance Abuse Proneness	84**	79**
Depressive Affect	98***	88***
Different Level of Trait		
Body Disapproval	63*	--
Impulsive Propensity	74*	76**
Introversive	75**	64*
Identity Diffusion	79**	64*
Peer Insecurity	82**	67*

Table 13 (continued)

Cluster Comparisons between the Full Sample and 50 Percent Random Sample: 1st Cluster

	Cluster 1	
	Full Sample	Random Sample
Childhood Abuse	78**	72*
Suicidal Tendency	75**	62*
Self-devalution	93***	80**

Note. * 60-74 (some of trait).
** 75-84 (clinically significant trait).
*** 85 + (prominent trait).

Table 14

Cluster Comparisons between the Full Sample and 50 Percent Random Sample: 2nd Cluster

	Cluster 2	
	Full Sample	Random Sample
Same Level of Trait		
Dramatizing	60*	63*
Conforming	67*	74*
Anxious Feelings	79**	83**
Different Level of Trait		
Submissive	71*	76**
Sexual Discomfort	68*	75**

Note. * 60-74 (some of trait).
** 75-84 (clinically significant trait).

Table 15

Cluster Comparisons between the Full Sample and 50 Percent Random Sample: 3rd Cluster

	Full Sample (Cluster 3)	Random Sample (Cluster 4)
Same Level of Trait		
Introversive	67*	67*
Doleful	70*	71*
Submissive	68*	71*
Oppositional	66*	65*
Self-Demeaning	62*	64*
Self-devaluation	73*	74*
Sexual Discomfort	61*	60*
Peer Insecurity	71*	72*
Depressive Affect	85**	86**
Different Level of Trait		
Childhood Abuse	--	61*
Anxious Feelings	74*	81**
Inhibited	76**	74*

Note. * 60-74 (some of trait).
** 75-84 (clinically significant trait).

Table 16

Cluster Comparisons between the Full Sample and 50 Percent Random Sample: 4th Cluster

	Full Sample (Cluster 4)	Random Sample (Cluster 3)
Same Level of Trait		
Dramatizing	70*	72*
Egotistic	63*	66*
Different Level of Trait		
Substance Abuse	--	63*
Impulsive Propensity	--	68*
Unruly	74*	80**
Social Insensitivity	71*	76**
Family Discord	72*	75**
Delinquency Predisposition	79**	86***

Note. * 60-74 (some of trait).
** 75-84 (clinically significant trait).
*** 85 + (prominent trait).

Table 17

Cluster Comparisons between the Full Sample and 50 Percent Random Sample: 5th Cluster

	Cluster 5	
	Full Sample	Random Sample
Same Level of Trait		
Social Insensitivity	69*	61*
Different Level of Trait		
Anxious Feelings	--	65*
Introversive	63*	--
Self-Demeaning	63*	--
Borderline Tendency	67*	--
Identity Diffusion	62*	--
Self-devaluation	64*	--
Substance Abuse Proneness	70*	--
Doleful	77**	--
Unruly	78**	--
Oppositional	75**	--
Family Discord	75**	--
Delinquency Predisposition	76**	62*

Table 17 (continued)

Cluster Comparisons between the Full Sample and 50 Percent Random Sample: 5th Cluster

	Cluster 5	
	Full Sample	Random Sample
Impulsive Propensity	82**	--
Depressive Affect	78**	--

Note. * 60-74 (some of trait).
** 75-84 (clinically significant trait).
*** 85 + (prominent trait).

Table 18

Chi-Square Analyses with Clinical Interview Variables: Victimization

Variable	One (*N*=42)	Two (*N*=171)	Three (*N*=94)	Four (*N*=83)	Five (*N*=50)	Total (%)	χ^2	*p*
SA Victimization								
Yes (%)	20 (4.5)	48 (10.9)	41 (9.3)	14 (3.2)	15 (3.4)	138 (31.4)	20.72	.000
No (%)	22 (5)	123 (28)	53 (12)	69 (15.7)	35 (8)	302 (68.6)	(4, *N*=440)	
SA Relationship to 1st Perpetrator								
Parent (%)	3 (2.9)	4 (3.9)	6 (5.8)	3 (2.9)	3 (2.9)	19 (18.4)	9.61	.650
Sibling (%)	3 (2.9)	5 (4.9)	3 (2.9)	0 (0)	0 (0)	11 (10.7)	(12, *N*=103)	
Friend (%)	5 (4.9)	14 (13.6)	11 (10.7)	2 (1.9)	2 (1.9)	34 (33)		
Stranger (%)	8 (7.8)	9 (8.7)	12 (11.7)	5 (4.9)	5 (4.9)	39 (37.9)		
PA Victimization								
Yes (%)	23 (5.2)	56 (12.7)	35 (8)	32 (7.3)	19 (4.3)	165 (37.5)	7.03	.134
No (%)	19 (4.3)	115 (26.1)	59 (13.4)	51 (11.6)	31 (7)	275 (62.5)	(4, *N*=440)	
PA Relationship to 1st Perpetrator								
Parent (%)	15 (9.2)	46 (28.2)	25 (15.3)	22 (13.5)	12 (7.4)	120 (73.6)	18.42	.300
Sibling (%)	2 (1.2)	0 (0)	0 (0)	2 (1.2)	0 (0)	4 (2.5)	(16, *N*=163)	
Relative (%)	4 (2.5)	4 (2.5)	5 (3.1)	2 (1.2)	3 (1.8)	18 (11)		
Friend (%)	1 (.6)	0 (0)	1 (.6)	2 (1.2)	2 (1.2)	6 (3.7)		
Other (%)	1 (.6)	6 (3.7)	3 (1.8)	3 (1.8)	2 (1.2)	15 (9.2)		

Table 18 (continued)

Chi-Square Analyses with Clinical Interview Variables: Victimization

Variable	One (*N*=42)	Two (*N*=171)	Three (*N*=94)	Four (*N*=83)	Five (*N*=50)	Total (%)	χ^2	*p*
Neglect History								
Yes (%)	7 (1.6)	21 (4.8)	19 (4.3)	15 (3.4)	6 (1.4)	68 (15.5)	3.89	.422
No (%)	35 (8)	150 (34.1)	75 (17)	68 (15.5)	44 (10)	372 (84.5)	(4, *N*=440)	
Trauma History								
Yes (%)	20 (4.5)	70 (15.9)	50 (11.4)	43 (9.8)	21 (4.8)	204 (46.4)	5.19	.269
No (%)	22 (5)	101 (23)	44 (10)	40 (9.1)	29 (6.6)	236 (53.6)	(4, *N*=440)	

Note. SA = Sexual Abuse. PA = Physical Abuse.

Table 19

Chi-Square Analyses with Clinical Interview Variables: Treatment History

Variable	One (*N*=42)	Two (*N*=171)	Three (*N*=94)	Four (*N*=83)	Five (*N*=50)	Total (%)	χ^2	*p*
History of Psychological Treatment								
Yes (%)	33 (7.5)	100 (22.7)	65 (14.8)	54 (12.3)	38 (8.6)	290 (65.9)	9.93	.042
No (%)	9 (2)	71 (16.1)	29 (6.6)	29 (6.6)	12 (2.7)	150 (34.1)	(4, *N*=440)	
Ever Prescribed Psychotropic Medication								
Yes (%)	31 (7)	74 (16.8)	53 (12)	54 (12.3)	34 (7.7)	246 (55.9)	22.33	.000
No (%)	11 (2.5)	97 (22)	41 (9.3)	29 (6.6)	16 (3.6)	194 (44.1)	(4, *N*=440)	
Currently Taking Psychotropic Medication								
Yes (%)	19 (4.3)	24 (5.5)	27 (6.1)	22 (5)	15 (3.4)	107 (24.3)	21.90	.000
No (%)	23 (5.2)	147 (33.4)	67 (15.2)	61 (13.9)	35 (8)	333 (75.7)	(4, *N*=440)	

Table 20

Chi-Square Analyses with Clinical Interview Variables: Juvenile Sex Offending

Variable	One (*N*=42)	Two (*N*=171)	Three (*N*=94)	Four (*N*=83)	Five (*N*=50)	Total (%)	χ^2	*p*
Victim Age Relative to Offender Ever								
Younger (%)	26 (6)	115 (26.5)	51 (11.8)	44 (10.1)	26 (6)	262 (60.4)	15.09	.057
Peer + (%)	12 (2.8)	41 (9.4)	23 (5.3)	29 (6.7)	17 (3.9)	122 (28.1)	(8, *N*=434)	
Mixed (%)	.4 (.9)	12 (2.8)	18 (4.1)	9 (2.1)	7 (1.6)	50 (11.5)		
Victim Gender Ever								
Female (%)	26 (6)	121 (27.9)	61 (14.1)	59 (13.6)	35 (34.9)	302 (69.7)	11.39	.587
Male (%)	10 (2.3)	34 (7.9)	17 (3.9)	10 (2.3)	13 (3)	84 (19.4)	(8, *N*=433)	
Mixed (%)	6 (1.4)	13 (3)	14 (3.2)	12 (2.8)	2 (.5)	47 (10.9)		
Index Offense Victim Age Relative to Offender								
Younger (%)	30 (6.9)	124 (28.5)	62 (14.3)	51 (11.7)	33 (7.6)	300 (69)	3.72	.445
Peer + (%)	12 (2.8)	45 (10.3)	30 (6.9)	31 (7.1)	17 (3.9)	135 (31)	(4, *N*=435)	
Index Offense Physical Intrusiveness								
No touch (%)	3 (.7)	17 (3.9)	10 (2.3)	7 (1.6)	3 (.7)	40 (9.1)	14.17	.822
Fondling (%)	13 (3)	41 (9.4)	29 (6.6)	22 (5)	10 (2.3)	115 (26.3)	(20, *N*=438)	
Penetrat. (%)	9 (2.1)	26 (5.9)	14 (3.2)	20 (4.6)	11 (2.5)	80 (18.3)		
Oral Sex (%)	4 (.9)	21 (4.8)	7 (1.6)	5 (1.1)	5 (1.1)	42 (9.6)		
2 Types (%)	9 (2.1)	49 (11.2)	21 (4.8)	19 (4.3)	17 (8.9)	115 (26.3)		
3 + Types (%)	4 (.9)	16 (3.7)	13 (3)	9 (2.1)	4 (.9)	46 (10.5)		

Table 20 (continued)

Chi-Square Analyses with Clinical Interview Variables: Juvenile Sex Offending

Variable	One (*N*=42)	Two (*N*=171)	Three (*N*=94)	Four (*N*=83)	Five (*N*=50)	Total (%)	χ^2	*p*
Index Offense Victim Gender								
Female (%)	31 (7.1)	126 (29)	66 (15.2)	65 (15)	36 (8.3)	324 (74.7)	1.55	.818
Male (%)	11 (2.5)	42 (9.7)	26 (6)	17 (3.9)	14 (3.2)	110 (25.3)	(4, *N*=434)	
Index Offense Relationship to Victim								
Sibling (%)	9 (2.1)	39 (9)	25 (5.8)	21 (4.9)	11 (2.6)	105 (24.4)	11.99	.745
Relative (%)	12 (2.8)	49 (11.4)	26 (6)	15 (3.5)	13 (3)	115 (26.7)	(16, *N*=431)	
Peer (%)	17 (3.9)	70 (16.2)	35 (8.1)	38 (8.8)	21 (4.9)	181 (42)		
Girlfriend (%)	2 (.5)	8 (1.9)	1 (.2)	3 (.7)	2 (.5)	16 (3.7)		
Stranger (%)	1 (.2)	2 (.5)	3 (.7)	5 (1.2)	3 (.7)	14 (3.2)		
Index Offense Use of Restraint								
Yes (%)	3 (.7)	11 (2.7)	10 (2.5)	6 (1.5)	4 (1)	34 (8.4)	1.60	.808
No (%)	36 (8.9)	146 (36)	76 (18.8)	69 (17)	44 (10.9)	371 (91.6)	(4, *N*=405)	

Table 21

One-Way ANOVAs with Clinical Interview Variables

Variable	One (*N*=42)	Two (*N*=171)	Three (*N*=94)	Four (*N*=83)	Five (*N*=50)	ANOVA *F*	*p*
Age	15.80[ab]	16.01[b]	15.87[b]	15.91[b]	15.18[a]	*(4, 435)* = 3.53	.008
(*SD*)	(1.28)	(1.40)	(1.50)	(1.24)	(1.44)		
Age 1st SA Victim	8.45[a]	7.77[a]	7.98[a]	9.64[a]	9.07[a]	*(4, 130)* = .79	.532
(*SD*)	(3.80)	(3.97)	(4.14)	(4.34)	(3.89)		
Age 1st PA Victim	8.61[a]	7.30[a]	7.49[a]	9.50[a]	7.47[a]	*(4, 160)* = 1.83	.126
(*SD*)	(3.70)	(4.31)	(4.39)	(4.01)	(3.29)		
# Admitted SO's	3.95[a]	4.54[a]	7.28[a]	3.32[a]	4.90[a]	*(4, 434)* = 1.34	.255
(*SD*)	(8.30)	(12.38)	(15.73)	(5.96)	(14.10)		
# Victims	1.71[a]	2.18[a]	2.52[a]	1.52[a]	1.67[a]	*(4, 420)* = .47	.760
(*SD*)	(1.08)	(7.75)	(5.34)	(1.08)	(1.12)		
1st Victim Age	8.96[a]	8.88[a]	8.80[a]	10.64[a]	10.28[a]	*(4, 430)* = 2.24	.064
(*SD*)	(3.81)	(4.05)	(4.14)	(7.29)	(7.51)		

Table 21 (continued)

One-Way ANOVAs with Clinical Interview Variables

	One	Two	Three	Four	Five	ANOVA	
Variable	(*N*=42)	(*N*=171)	(*N*=94)	(*N*=83)	(*N*=50)	*F*	*p*
2nd Victim Age	9.13[a]	8.68[a]	8.42[a]	9.56[a]	9.06[a]	*(4, 429)* = .35	.843
(*SD*)	(3.96)	(3.77)	(3.79)	(3.80)	(4.63)		

Note. Mean cluster scores that share a common superscript in each row indicate differences were not significant at the $p < .05$ level on Tukey post hoc *t* tests.
SA = Sexual Abuse. PA = Physical Abuse.

Table 22

One-Way ANOVAs with HARE PCL:YV Total Score, Factor 1 Score, and Factor 2 Score

Variable	One (*N*=42)	Two (*N*=171)	Three (*N*=94)	Four (*N*=83)	Five (*N*=50)	ANOVA *F*	*p*
Total Score (*SD*)	21.07[b] (8.71)	12.71[a] (7.56)	14.04[a] (6.58)	19.74[b] (8.12)	20.57[b] (7.23)	*(4, 429)* = 23.75	.000
Factor 1 Score (*SD*)	7.64[b] (4.32)	5.01[a] (3.25)	5.13[a] (3.05)	7.07[b] (3.98)	7.19[b] (3.47)	*(4, 425)* = 10.30	.000
Factor 2 Score (*SD*)	10.29[b] (3.62)	5.92[a] (3.97)	7.21[a] (3.49)	9.68[b] (4.07)	10.42[b] (3.33)	*(4, 425)* = 26.10	.000

Note. Mean cluster scores that share a common superscript in each row indicate differences were not significant at the $p < .05$ level on Tukey post hoc *t* tests.

Table 23

One-Way ANOVAs with Juvenile Sex Offender Assessment Protocol (J-SOAP) I and II Scores

Variable	One (*N*=42)	Two (*N*=171)	Three (*N*=94)	Four (*N*=83)	Five (*N*=50)	ANOVA *F*	*p*
J-SOAP I							
Pre-treat Factor 1 (*SD*)	2.67[a] (2.06)	2.13[a] (1.70)	2.69[a] (1.63)	2.38[a] (1.88)	2.55[a] (1.57)	*(4, 272)* = 1.28	.279
Pre-treat Factor 2 (*SD*)	17.29[c] (3.64)	11.54[a] (5.31)	13.27[ab] (4.70)	15.44[bc] (3.45)	16.66[c] (3.10)	*(4, 272)* = 15.16	.000
Post-treat Factor 3 (*SD*)	3.90[b] (3.48)	2.16[ab] (1.92)	2.00[a] (1.60)	2.66[ab] (2.40)	2.42[ab] (2.17)	*(4, 155)* = 1.87	.118
Post-treat Factor 4 (*SD*)	4.11[a] (2.62)	2.97[a] (1.80)	3.66[a] (2.31)	4.18[a] (2.34)	3.84[a] (2.67)	*(4, 148)* = 1.99	.100
Pre-Post Dynamic (*SD*)	1.22[a] (10.56)	4.20[a] (4.34)	5.50[a] (5.03)	5.42[a] (4.72)	4.56[a] (6.05)	*(4, 147)* = 1.43	.226
J-SOAP II							
Pre-treat Factor 1 (SD)	5.10[a] (2.83)	3.84[a] (2.87)	3.27[a] (3.08)	3.07[a] (2.53)	4.45[a] (2.50)	*(4, 158)* = 2.10	.083

Table 23 (continued)

One-Way ANOVAs with Juvenile Sex Offender Assessment Protocol (J-SOAP) I and II Scores

Variable	One (*N*=42)	Two (*N*=171)	Three (*N*=94)	Four (*N*=83)	Five (*N*=50)	ANOVA *F*	*p*
Pre-treat Factor 2 (*SD*)	9.80[bc] (3.11)	6.72[a] (4.08)	7.73[ab] (3.44)	10.48[c] (2.43)	10.30[bc] (2.74)	*(4, 158)* = 9.04	.000
Post-treat Factor 3 (*SD*)	4.33[a] (2.15)	3.38[a] (2.58)	5.47[a] (3.20)	3.86[a] (1.66)	5.75[a] (3.39)	*(4, 92)* = 3.06	.021
Post-treat Factor 4 (*SD*)	3.67[ab] (2.15)	2.29[a] (2.03)	3.18[ab] (2.07)	3.71[ab] (2.59)	5.25[b] (2.90)	*(4, 92)* = 4.53	.002
Pre-Post Dynamic (*SD*)	5.43[b] (7.04)	2.96[a] (4.34)	4.00[a] (3.11)	4.38[b] (4.17)	5.20[b] (4.27)	*(4, 47)* = .57	.685

Note. Mean cluster scores that share a common superscript in each row indicate differences were not significant at the $p < .05$ level on Tukey post hoc *t* tests.

Table 24

Chi-Square Analyses with the Global Trauma Score

Variable	One (*N*=42)	Two (*N*=171)	Three (*N*=94)	Four (*N*=83)	Five (*N*=50)	Total (%)	χ^2	*p*
Global Trauma								
None (%)	3 (.7)	18 (4.1)	3 (.7)	6 (1.4)	6 (1.4)	36 (8.2)	15.31	.053
1 to 3 (%)	27 (6.1)	122 (27.7)	61 (13.9)	65 (14.8)	35 (8)	310 (70.5)	(8, *n*=440)	
4 to 7 (%)	42 (2.7)	31 (7)	30 (6.8)	12 (2.7)	9 (2)	94 (21.4)		

Note. Mean cluster scores that share a common superscript in each row indicate differences were not significant at the $p < .05$ level on Tukey post hoc *t* tests.

Table 25

One-Way ANOVAs with Internalizing and Externalizing Factor Scores

	One	Two	Three	Four	Five	ANOVA	
Variable	(*N*=42)	(*N*=171)	(*N*=94)	(*N*=83)	(*N*=50)	*F*	*p*
Internalizing Factor	.99[c]	-.34[a]	.57[b]	-.59[a]	.28[b]	*(4, 418)* = 59.92	.000
(*SD*)	(.70)	(.73)	(.71)	(.65)	(.68)		
Externalizing Factor	.63[cd]	-.49[a]	-.11[b]	.33[c]	.77[d]	*(4, 420)* = 38.04	.000
(*SD*)	(.75)	(.84)	(.80)	(.75)	(.61)		

Note. Mean cluster scores that share a common superscript in each row indicate differences were not significant at the $p < .05$ level on Tukey post hoc *t* tests.

Table 26

One-Way ANOVAs with Multiphasic Sex Inventory (MSI) Variables

	One	Two	Three	Four	Five	ANOVA	
Variable	(*N*=42)	(*N*=171)	(*N*=94)	(*N*=83)	(*N*=50)	*F*	*p*
Validity Scales							
Social/Sexual Desir.	25.54[c]	19.78[a]	21.53[ab]	24.01[bc]	23.69[bc]	*(4, 428)* = 11.72	.000
(*SD*)	(5.43)	(6.49)	(6.10)	(6.36)	(6.26)		
Sexual Obsession	9.02[c]	3.02[a]	5.10[b]	4.04[ab]	7.88[c]	*(4, 428)* = 32.72	.000
(*SD*)	(5.50)	(2.97)	(3.72)	(3.55)	(4.28)		
Lie	9.05[a]	10.45[c]	10.26[bc]	10.69[c]	9.33[ab]	*(4, 415)* = 5.63	.000
(*SD*)	(2.84)	(2.34)	(2.26)	(1.93)	(2.53)		
Accountability Scales							
Cognitive Distortions	7.22[b]	4.81[a]	6.92[b]	4.51[a]	6.92[b]	*(4, 428)* = 23.75	.000
(*SD*)	(3.01)	(2.30)	(2.55)	(2.23)	(2.31)		
Justification	5.88[c]	3.41[a]	5.48[bc]	3.94[ab]	7.08[c]	*(4, 428)* = 14.68	.000
(*SD*)	(4.16)	(2.87)	(4.21)	(3.02)	(4.13)		
Treatment Attitudes Scale							
Treatment Attitudes	3.83[b]	2.69[a]	2.86[a]	2.32[a]	3.06[ab]	*(4, 428)* = 4.70	.000
(*SD*)	(1.77)	(2.09)	(1.66)	(1.81)	(1.94)		

Table 26 (continued)

One-Way ANOVAs with Multiphasic Sex Inventory (MSI) Variables

Variable	One (*N*=42)	Two (*N*=171)	Three (*N*=94)	Four (*N*=83)	Five (*N*=50)	ANOVA *F*	*p*
Sexual Deviance Scales							
Child Molest	9.27[c]	6.01[a]	6.63[ab]	4.84[a]	8.71[bc]	*(4, 428)* = 6.63	.000
(*SD*)	(7.47)	(5.70)	(5.08)	(4.36)	(5.93)		
Rape	6.07[c]	2.29[ab]	3.33[b]	1.67[a]	5.33[c]	*(4, 428)* = 21.03	.000
(*SD*)	(4.55)	(2.68)	(3.42)	(1.71)	(4.97)		
Exhibitionism	5.22[b]	1.71[a]	2.46[a]	2.59[a]	4.47[b]	(4, 428) = 21.74	.000
(SD)	(3.94)	(1.81)	(2.47)	(2.51)	(3.68)		
Atypical Behaviors Scales							
Fetish	1.17[c]	.24[a]	.43[ab]	.12[a]	.78[bc]	(4, 428) = 13.55	.000
(SD)	(1.38)	(.70)	(.97)	(.33)	(1.31)		
Voyeurism	2.93[c]	.73[a]	1.53[b]	.98[ab]	2.71[c]	(4, 428) = 33.35	.000
(SD)	(2.02)	(1.23)	(1.53)	(1.14)	(1.72)		
Obscene Call	1.29[b]	.35[a]	.62[a]	.48[a]	1.08[b]	(4, 428) = 16.83	.000
(SD)	(1.15)	(.57)	(.87)	(.77)	(1.04)		
Bondage/Discipline	.90[c]	.22[a]	.30[ab]	.34[ab]	.65[bc]	(4, 428) = 7.63	.000
(SD)	(1.36)	(.57)	(.74)	(.79)	(1.05)		
Sado-Masochism	1.17[b]	.31[a]	.48[a]	.24[a]	1.14[b]	(4, 428) = 12.57	.000
(SD)	(1.45)	(.74)	(.85)	(.46)	(1.89)		

Table 26 (continued)

One-Way ANOVAs with Multiphasic Sex Inventory (MSI) Variables

Variable	One (*N*=42)	Two (*N*=171)	Three (*N*=94)	Four (*N*=83)	Five (*N*=50)	ANOVA *F*	*p*
Sexual Dysfunctions Scales							
Physical Disabilities	1.16[c]	.22[a]	.42[ab]	.20[a]	.73[bc]	(4, 428) = 10.31	.000
(SD)	(1.46)	(.85)	(.87)	(.68)	(1.27)		
Impotence	1.66[b]	.69[a]	1.13[ab]	.70[a]	1.29[b]	(4, 428) = 8.11	.000
(SD)	(1.11)	(1.00)	(1.39)	(1.15)	(1.44)		
Sexual Inadequacy	3.37[c]	2.26[b]	2.86[bc]	.93[a]	2.49[bc]	(4, 427) = 11.59	.000
(SD)	(2.62)	(2.38)	(2.33)	(1.25)	(2.39)		
Sexual Knowledge and Beliefs Scale							
Sex Know/Beliefs	12.68[a]	13.16[a]	12.99[a]	13.89[a]	12.59[a]	(4, 428) = 2.00	.093
(SD)	(2.91)	(3.05)	(2.87)	(2.97)	(3.08)		
Sexual History Scale							
Sexual History	11.88[b]	8.11[a]	9.88[ab]	7.57[a]	11.00[b]	(4, 426) = 9.27	.000
(SD)	(7.65)	(4.16)	(5.23)	(3.50)	(5.91)		

Note. Mean cluster scores that share a common superscript in each row indicate differences were not significant at the $p < .05$ level on Tukey post hoc *t* tests.

Table 27

One-Way ANOVAs with Inventory of Parent and Peer Attachment (IPPA) Variables

	One	Two	Three	Four	Five	ANOVA	
Variable	(*N*=42)	(*N*=171)	(*N*=94)	(*N*=83)	(*N*=50)	*F*	*p*
Parental Trust	35.84[a]	41.98[b]	38.03[ab]	42.14[b]	38.97[ab]	*(4, 308)* = 5.57	.000
(*SD*)	(10.22)	(7.72)	(10.51)	(6.99)	(6.56)		
Parental Comm.	33.16[a]	38.96[b]	35.30[ab]	38.12[b]	35.94[ab]	*(4, 308)* = 4.43	.002
(*SD*)	(10.27)	(8.43)	(9.00)	(7.24)	(6.65)		
Parental Alienation	25.22[c]	16.60[a]	21.62[bc]	18.00[ab]	22.14[c]	*(4, 308)* = 14.41	.000
(*SD*)	(7.21)	(6.68)	(7.80)	(6.91)	(5.26)		
Peer Trust	36.00[a]	39.25[a]	37.51[a]	39.81[a]	38.00[a]	*(4, 308)* = 1.07	.372
(*SD*)	(10.71)	(10.30)	(10.27)	(9.75)	(9.48)		
Peer Comm.	27.19[a]	26.70[a]	27.44[a]	27.50[a]	27.92[a]	*(4, 308)* = .20	.937
(*SD*)	(10.19)	(9.10)	(7.79)	(7.91)	(7.06)		
Peer Alienation	21.78[b]	17.01[a]	18.79[ab]	16.64[a]	19.39[ab]	*(4, 308)* = 4.12	.003
(*SD*)	(7.95)	(5.42)	(4.55)	(11.22)	(4.83)		

Note. Mean cluster scores that share a common superscript in each row indicate differences were not significant at the $p < .05$ level on Tukey post hoc *t* tests.

Table 28

One-Way ANOVAs with Substance Abuse Subtle Screening Inventory (SASSI) and Substance Abuse Subtle Screening Inventory: Second Edition (SASSI-A2) Variables

	One	Two	Three	Four	Five	ANOVA	
Variable	(*N*=42)	(*N*=171)	(*N*=94)	(*N*=83)	(*N*=50)	*F*	*p*
SASSI							
Face Valid Alcohol	11.08[b]	2.56[a]	2.85[a]	3.65[a]	6.11[a]	*(4, 171)* = 6.96	.000
(*SD*)	(9.83)	(5.08)	(4.59)	(4.54)	(7.56)		
Face Valid Drug Use	14.00[b]	3.16[a]	4.15[a]	5.33[a]	9.05[ab]	*(4, 171)* = 6.61	.000
(*SD*)	(13.09)	(6.29)	(6.96)	(6.39)	(10.41)		
SASSI-A2							
Face Valid Alcohol	8.03[c]	1.07[a]	3.98[ab]	3.60[ab]	5.07[bc]	*(4, 253)* = 12.48	.000
(*SD*)	(8.70)	(2.25)	(5.94)	(3.61)	(7.54)		
Face Valid Drug Use	11.27[c]	2.38[a]	5.20[ab]	9.90[bc]	10.33[bc]	*(4, 253)* = 8.98	.000
(*SD*)	(15.61)	(5.21)	(8.94)	(10.64)	(14.04)		

Note. Mean cluster scores that share a common superscript in each row indicate differences were not significant at the $p < .05$ level on Tukey post hoc *t* tests.

Table 29

One-Way ANOVAs with Caseworker/Therapist Feedback Form Variables

	One	Two	Three	Four	Five	ANOVA	
Variable	(*N*=42)	(*N*=171)	(*N*=94)	(*N*=83)	(*N*=50)	*F*	*p*
Accountability	3.66[a]	3.89[a]	3.55[a]	3.55[a]	3.71[a]	*(4, 212)* = 2.17	.074
(*SD*)	(1.04)	(.72)	(.74)	(.86)	(.72)		
Self-Control	3.53[a]	3.81[a]	3.40[a]	3.52[a]	3.54[a]	*(4, 212)* = 2.20	.070
(*SD*)	(.99)	(.77)	(.80)	(.93)	(.76)		
Healthy Masculinity	3.44[a]	3.73[a]	3.44[a]	3.29[a]	3.54[a]	*(4, 206)* = 2.76	.029
(*SD*)	(1.08)	(.64)	(.70)	(.88)	(.80)		
Relapse Prevention	3.47[a]	3.82[a]	3.63[a]	3.49[a]	3.73[a]	*(4, 202)* = 1.65	.163
(*SD*)	(1.17)	(.67)	(.72)	(.88)	(.71)		
Victim Empathy	3.53[a]	3.74[a]	3.52[a]	3.36[a]	3.63[a]	*(4, 204)* = 1.69	.154
(*SD*)	(1.23)	(.71)	(.81)	(.80)	(.68)		
Quality Engagement	3.47[a]	3.90[a]	3.62[a]	3.47[a]	3.76[a]	*(4, 203)* = 2.52	.043
(*SD*)	(1.23)	(.79)	(.78)	(.82)	(.63)		
Positive Attitude	3.53[a]	3.83[a]	3.51[a]	3.48[a]	3.62[a]	*(4, 206)* = 1.85	.120
(*SD*)	(1.13)	(.76)	(.82)	(.88)	(.83)		

Table 29 (continued)

One-Way ANOVAs with Caseworker/Therapist Feedback Form Variables

Variable	One (*N*=42)	Two (*N*=171)	Three (*N*=94)	Four (*N*=83)	Five (*N*=50)	ANOVA *F*	*p*
Group Participation	3.60[a]	3.88[a]	3.55[a]	3.59[a]	3.68[a]	*(4, 198)* = 1.51	.200
(*SD*)	(1.24)	(.66)	(.97)	(.80)	(.87)		
Prognosis Sex Off.	3.53[a]	4.13[b]	3.80[ab]	3.77[ab]	4.02[ab]	*(4, 209)* = 3.01	.019
(*SD*)	(1.09)	(.80)	(.76)	(.90)	(.65)		
Prognosis Crim. Beh.	3.47[a]	3.91[a]	3.58[a]	3.45[a]	3.50[a]	*(4, 210)* = 3.12	.016
(*SD*)	(.92)	(.82)	(.68)	(.94)	(.87)		
Positive to Youth	3.94[a]	4.04[a]	3.80[a]	3.80[a]	3.96[a]	*(4, 210)* = 1.28	.279
(*SD*)	(.87)	(.65)	(.78)	(.71)	(.61)		
Negative to Youth	1.81[a]	1.73[a]	1.95[a]	2.06[a]	1.81[a]	*(4, 209)* = 1.91	.110
(*SD*)	(.85)	(.65)	(.80)	(.70)	(.53)		

Note. Mean cluster scores that share a common superscript in each row indicate differences were not significant at the $p < .05$ level on Tukey post hoc *t* tests.