Exploring the Core Factors of Actuarials for Juveniles Who Sexually Offend

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ABSTRACT

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Factor analyses of actuarials for adults who sexually offend have yielded consistent core factors (e.g., Brouillette-Alarie, Babchishin, Hanson, & Helmus, 2016) that correlate with latent psychological characteristics of adults who sexually offend (ASOs). Although the body of work investigating adult actuarials continues to grow, parallel analyses of actuarials for juveniles who sexually offend (JSOs) are lacking. The present study explored the latent psychological constructs in the single existing empirically derived actuarial that has been validated for juveniles – the Juvenile Sexual Offense Recidivism Risk Assessment Tool (JSORRAT-II). Factor analysis of the 12-item JSORRAT-II yielded four factors that suggest potential underlying dynamic traits present in JSOs – Sexual Offending History, General Criminality, Familial Abuse, and Educational Disruptions. The four JSORRAT-II factors were validated using measures of the dynamic traits hypothesized to covary with each factor. Results of these analyses suggest that, unlike the adult actuarial measures, the static measures of the JSORRAT-II may not capture

latent psychological constructs. Clinicians and forensic evaluators must proceed with caution when using this measure in planning interventions, because although the JSORRAT-II reflects static, immutable historical events in the youths' lives, it apparently does not map well onto identifiable, mutable dynamic traits that are useful for treatment planning.

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Introduction

The extreme diversity among juveniles who sexually offend (JSOs) has long been a hallmark of this population (Knight & Prentky, 1993). Enormous differences exist that substantially differentiate each JSO in his developmental and criminal offending history, as well as future outcomes. Because of this significant diversity, clinicians cannot simply employ a one-size-fits-all method to assess risk and provide treatment to juveniles who sexually offend. If risk assessment is to be used effectively in the management and treatment of JSOs, the dynamic traits that they may evaluate have to be identified and quantified.

For treatment to be productive and efficient, providers must be able to assess the overall risk an individual poses so that resources are allocated properly, but providers must also identify treatment targets for different types of offenders. Three primary principles have been found to be essential in the effective treatment of JSOs, as well as in the treatment of other populations (Andrews & Bonta, 2006). These are known as the risk, needs, and responsivity (RNR) principles. The *risk* principle asserts that an offender's risk level determines the treatment resources that should be allocated to the individual, with higher risk levels receiving greater resources. The *need* principle maintains that treatment and management should target factors related to recidivism, known as criminogenic needs. The *responsivity* principle advises treatment providers to use methods appropriate to the individual's learning style, personality traits, and cultural and socioeconomic background. The RNR model propones assessment as a key feature of treatment programs. Risk assessment guides treatment resource allocation while individual

evaluation of an offender's problems guides individualized treatment (Andrews, Bonta, & Wormith, 2011).

Use of static risk assessment tools, measures that evaluate strictly historical factors, in predicting recidivism is preferred because of the straightforward nature of the ratings and the easy scoring that eliminate or greatly reduce errors stemming from subjective clinical judgments (Dawes, Faust, & Meehl, 1989). An increasingly common actuarial used in juvenile risk assessment is the Juvenile Sexual Offense Recidivism Risk Assessment Tool-II (JSORRAT-II). The JSORRAT-II is an empirically derived risk assessment tool, comprising solely static factors, and validated for use in multiple states including CA, GA, IA, and UT, (Epperson & Ralston, 2015). Although many other empirically guided risk assessment tools exist for juveniles - the Juvenile Sex Offender Assessment Protocol–II (JSOAP-II; Prentky & Righthand, 2003), the Estimate of Risk of Adolescent Sexual Offense Recidivism (ERASOR; Worling & Curwen, 2001), and the Juvenile Risk Assessment Tool (J-RAT; Rich, 2001), among others - the JSORRAT-II is the first and only empirically derived and entirely static risk assessment available for assessing the recidivism risk for juveniles.

Although the JSORRAT-II was empirically derived, its predictive credentials rest largely on its standardization samples, and it has fared less well in independent JSO samples. The initial development study reported an Area Under the Curve (AUC) value of .89, suggesting strong predictive accuracy (Epperson & Ralston, 2015; US Department of Justice, 2015). Subsequent validity studies of the JSORRAT-II have yielded much lower accuracy. AUC values reported for samples outside of the initial development sample range from .53 to .79, suggesting predictive accuracy that fluctuates from slightly better than chance to moderate accuracy (US Department of Justice, 2015).

Empirically derived risk assessment tools for adults who sexually offend (ASOs) are not only more abundant than actuarials for juveniles, but they also have undergone more empirical validation, all achieving approximately the same predictive accuracy (Epperson & Ralston, 2015). The Static-99R and the Static-2002R, two of the most commonly used actuarials for ASOs, show consistent, moderate predictive validity with AUC values of .72 and .73 respectively (Babchishin, Hanson, & Helmus, 2012). The Static-99R and the Static-2002R, which comprise solely static risk items such as age and prior sex offenses, are forensic tools used to predict the likelihood that an adult who sexually offends will recidivate upon criminal release.

Although static factors are useful in predicting recidivism, their use in informing clinical treatment strategies or in evaluating treatment progress is less well established. Brouillette-Alarie, Proulx, and Hanson (2016) recently addressed the issue of whether dynamic, malleable traits could be identified for components of the Static-99R and Static 2002. There are two types of dynamic risk factors: stable risk factors, like impulsivity and sexual preoccupation, that may change but are likely to continue for long periods of time, and acute risk factors, like access to victims and substance abuse that can change over weeks and even days, possibly signaling a new offense (Hanson, Harris, Scott, & Helmus, 2007). Brouillette-Alarie et al. factor analyzed recidivism risk tools (the Static-99R and Static 2002) to determine what core psychological traits these instruments assessed, hoping to identify the dynamic traits being measured.

Static and stable risk factors are predominantly behavioral (Brouillette-Alarie, et al., 2016). Whereas static risk assessments evaluate past, historical behaviors, stable and acute dynamic risk assessments evaluate present behaviors as manifestations of psychological constructs (Brouillette-Alarie, Proulx, & Hanson, 2016). When we garner an understanding of what psychological constructs map on to dynamic and static factors we can further increase the

predictive validity of actuarial tools by more clearly elucidating the behavior that is associated with the psychological trait. A better understanding of how dynamic and static factors are related will in turn allow clinicians to target treatment and create treatment plans more effectively and thoroughly.

Researchers believe that patterns of behavior assessed by actuarials, i.e. static risk factors, can be better understood and explained using latent variable models (Brouillette-Alarie, et al., 2016). Latent variable models are frequently employed in the study of personality trait theory (Cattell & Kline, 1977). Latent variables, or psychological constructs, such as agreeableness or openness to experience, identify the core personality components that hypothetically produce the emotions, thoughts, and patterns of behavior that we measure. Given this understanding, items from static risk assessments can be seen as historical behavioral expressions of psychological constructs. Such constructs are more directly assessed in the present by stable dynamic measures. For example, a JSO charged with three different victims (static risk factor) who also has high scores on measures of sexual compulsivity (dynamic risk factor) is believed to have a high degree of the trait "sexualization." Sexualization covaries with sexually coercive behavior and plays a role in the etiology of sexual aggression (Knight & Cerce, 1999; Knight & Sims-Knight, 2011; MIDSA 2011). Because these static and dynamic factors predict sexual recidivism, they are understood to be past and present expressions of the psychological trait.

Increased understanding of which psychological constructs are associated with which risk factors provides several advantages. First, static risk assessments can become signals of changeable behavior (Brouillette-Alarie, Proulx, & Hanson, 2016). Although it is not possible to change the role of a JSO's previous substance use in his past offending cycle, it might be possible to change the JSO's future impulsivity and substance use. Second, latent psychological

construct models facilitate an understanding about why some scales have stronger predictive validity than others (Brouillette-Alarie, et al., 2016). Considering the specific construct that a scale measures can explain why the measurement is valid under particular circumstances. For example, scales addressing static factors related to general criminal acts will predict sexual and nonsexual recidivism whereas scales addressing static factors related to sexually criminal acts will only predict sexual recidivism but not nonsexual recidivism. Similarly, the consideration of subscales based on latent psychological constructs rather than total scores may increase predictive validity of an actuarial and aid in treatment planning through targeting individuals possessing certain characteristics, which are expressed in their behaviors.

A large body of work has begun to establish the latent psychological constructs associated with actuarial assessment tools for adult sexual offenders (Brouillette-Alarie, Proulx, & Hanson, 2016). Consistently, these studies have identified three potential constructs that predict recidivism. Items relating to sexual criminality like having juvenile male victims and frotteurism define one construct. This is generally interpreted through the lens of deviant sexual interest or paraphilic interest as a latent construct. The second construct is defined by items relating to general criminality that describe the length, depth, and violence associated with an individual's criminal history. General criminality is interpreted in relation to antisocial or psychopathic traits. The third is defined by items relating to youthful aggression like young age at index offense, excessive violence at index offense, and stranger victims. Much debate exists about the latent constructs related to youthful aggression. Some researchers believe it to be related to emotional dysregulation and possibly sadism (Allen & Pflugradt, 2014; Roberts et al., 2002), whereas others believe it to be an artifact without any psychological meaning (Brouillette-Alarie et al., 2016; Knight & Thornton, 2007; Seto, 2005).

Although many studies have sought to describe the latent psychological traits described by actuarials designed for adults who sexually offend (Brouillette-Alarie et al., 2016; Brouillette-Alarie, Proulx, & Hanson, 2016) parallel analyses of actuarials for JSOs are lacking. No prior work exists on the latent psychological traits present in actuarials designed for juveniles who sexually offend. The present study seeks to determine the latent psychological constructs represented in the JSORRAT-II, the only actuarial used to predict risk for juveniles who sexually offend. JSORRAT-II scores were factor analyzed to determine what latent constructs may be assessed by the actuarial and the resulting factors were validated both against a self-report inventory (the Multidimensional Assessment of Sex and Aggression [the MASA], see MIDSA, 2011) and dynamic scales generated independently from archival files. Should the present study determine that the JSORRAT-II identifies latent psychological constructs important in treatment planning, treatment providers will gain increased utility from an easy to use instrument that not only assesses risk, but also provides clues about treatment targets for JSOs.

Methods

Participants

Male JSOs were sampled from youth residential sex-offender treatment centers in Maine, Massachusetts, Minnesota, and Virginia from 1996 through 1999. Each juvenile was referred to treatment as the result of at least one serious sexual offense. A serious sexual offense was defined as a sexually motivated assault involving physical contact with a victim. The initial sample was comprised of 329 juveniles who had sexually offended. Twenty-two JSOs were omitted from further analyses due to either being caught "speeding," answering questions faster than the minimum time required to read them, or for a lack of cooperation with testing procedures. The final sample included in analyses is 307 male juveniles who have sexually offended. The rating of JSORRAT-IIs is an ongoing project. For this study we analyzed all of the juveniles who had been rated to the present (n = 141).

The mean age of the juvenile sample was 15.17 years (SD = .24, range = 11 to 22). Although 6% of the sample was older than the age of 18, the sample was considered to be within the boundaries of adolescence and under the legal age of adulthood. The JSO sample was ethnically diverse (Caucasian = 59%, African American = 17%, Hispanic = 7%, Asian = 4%, Native American = 4%, other = 9%). Juveniles were arrested an average of 3.4 times, including the index offense, and the average age of first arrest was 9.6 years. The average commitment period was 1 to 2 years. Whereas 7% of the participants had spent no prior time in a juvenile detention facility, 30% had spent more than 1 year and 25% had spent more than 2 years. Forty-one percent of the sample received previous sexual offender specific treatment more than once.

Participants were selected using a two-step process. First, on-site personnel identified and consulted prospective volunteers via advertising and direct interaction. Parental consent and juvenile assent were acquired before testing began. Second, researchers met with groups of 6 to 15 potential participants to offer more detail about the nature of the questions they would be asked, the protection of their confidentiality, and the $18 compensation for their participation. Participants were assigned random identification numbers and neither their names nor their institution were included in any part of the testing agreement. A master list links participants' research numbers to their names in order to glean supplemental information from their criminal records to be matched with their MASA responses. The master list of participants is stored in a locked file cabinet within a locked laboratory on the Brandeis University campus. Institutional review boards at Brandeis University and each site at which JSOs were tested approved the research protocols and participant selection.

Measures

Archival Ratings. The archival files were the source for both the JSORRAT-II and the MTC Dictionary ratings.

JSORRAT-II. The JSORRAT-II (Juvenile Sexual Offense Recidivism Risk Assessment Tool-II) is a 12-item actuarial, used to assess the recidivism risk of male juveniles, aged 12-17.99, based on a justice case file review, performed by a trained rater (Epperson, 2015). Information gained from JSORRAT-II scores is used to inform forensic decisions about JSOs in the states in which the tool has been validated – CA, GA, IA, and UT. Potential scores for the JSORRAT-II can range from 0 to 21. JSOs scoring a 5 or higher on the JSORRAT-II have a 37.1% rate of sexual recidivism (Epperson & Ralston, 2015). JSORRAT-II ratings were completed on 141 of the 307 juveniles.

MTC Dictionary Variables. The Massachusetts Treatment Center (MTC) Coding Dictionary, along with the subsequent Juvenile Coding Dictionary derived from the MTC Dictionary, is a compilation of guidelines used to assign ratings to the comprehensive criminal justice files of adults who sexually offend (Knight et al., 1986). The Juvenile Coding Dictionary was adapted from the MTC Dictionary to outline the specific information relevant when rating criminal justice files of juveniles who sexually offend. Files were assigned ratings for variables relating to demographic information, detailed developmental and familial histories, social competence, aggression, antisocial behavior, offense style, and the severity of clinical and behavioral symptoms. The MTC Dictionary was the source of measures used to develop typological models for offenders against adult women and those who molest children (Knight, 2010; Knight & King, 2012). Using items from the MTC Dictionary, we constructed exploratory, analogue scales designed to investigate which latent dynamic traits each JSORRAT-II factor might measure. Cronbach's alphas for the exploratory analogue scales ranged from 0.73 to 0.94.

MASA. The MASA (Multidimensional Assessment of Sex and Agression, since Version 7 the assessment is called the Multidimensional Inventory of Development, Sex and Aggression [MIDSA]) is a self-report, contingency-based, computer administered assessment designed to gather an individual's developmental, social, academic, sexual, and antisocial histories (Knight & Cerce, 1999; MIDSA 2011). The MASA is used to assess dynamic traits such as deviant sexual interests, inhibition difficulties, and antisocial traits, which predict the latent psychological constructs of an individual. The versions of the MASA administered in the present study (Versions 3, 4, 5, and 6) included language appropriate for juveniles, as well as age-appropriate questions regarding sexual behaviors, attitudes, cognitions, and fantasies. The scales incorporated in the MASA, including those selected for use in the present study, maintain

adequate to high test-retest reliability in adult offender, juvenile offender, and community samples. Eighty-seven percent of the 53 scales yielded Crohnbach's alphas greater than or equal to .70, 63% of the scales produced alphas greater than or equal to .80, and none of the scales' Crohnbach's alphas fell below .60 (Knight & Cerce, 1999; MIDSA, 2011). Juvenile and adult samples have shown consistency in their factor structures across all domains assessed. Additionally, juvenile samples have been found to have test-retest reliability and internal consistencies similar to those found in adult samples (Knight, 2004; Knight & Cerce, 1999; MIDSA, 2011). The present study focused on the MASA scales that were hypothesized to reflect the latent constructs suggested by factor analysis of the JSORRAT-II.

Individual MASA items were used to construct static scales that closely matched the JSORRAT-II items of each factor. These static MASA scales were used to assess consistency across self-report and archival clinical measures. They were also used to validate the JSORRAT-II factors. Internal consistencies for the static MASA scales ranged from 0.29 to 0.82. These scales had a small number of items making it difficult to achieve a high internal consistency.

Sexualization. The 3 scales in the sexualization cluster assess various aspects of appetitive and consummatory sexual behavior and sexual fantasy. The hypersexuality scale (α = 0.69) is rationally derived and consists of five items that measure components of sexual drive that Kafka (2010) recommended to assess hypersexuality. Respondents who scored high on this scale reported frequent sexual activity and/or the need to have sex frequently. An example of an item on the scale is, "I need to masturbate or have sex every day so that I feel less tense." The sexual compulsivity scale (α = 0.85) is factor derived and consists of nine items. Respondents who scored high on this scale reported being a slave to their sexual urges/being unable to control their sexual urges. An example of an item is, "I have to fight sexual urges." The preoccupation

scale (α = 0.90) is factor derived and consists of seven items. Respondents who scored high on this scale reported that they think, daydream, and dream about sex frequently. An example of an item on the scale is, "There have been times when I thought about sex all of the time."

Juvenile delinquency. The juvenile delinquency scale (α = 0.90) consists of 10 rationally derived subscales that assess criminal behavior prior to the age of 18 across the domains of stealing, breaking and entering, damaging property, disorderly conduct, traffic offenses, drug related crimes, crimes involving weapon use, assaultive crimes, and truancy and running away. Respondents who scored high on this scale show a high frequency of criminal activity in a particular domain or criminal activity across a wide variety of domains. An example of an item on this scale is, "Before my 18th birthday I was charged with or convicted of disorderly conduct or disturbing the peace."

Temporal abuse. The temporal abuse frequency scale is a summative measure that assesses how often physical and sexual abuse was perpetrated against the respondent by an adult. Internal consistencies were not calculated for this scale because it is a frequency count. The developmental inventory uses contingency based questions to determine if a respondent was physically or sexually abused and how often the abuse occurred. This scale relies on the simple frequency of abuse by an adult during the respondent's development.

ADHD and Oppositional Behavior. The 3 factor derived scales in the ADHD and Oppositional Behavior cluster are modeled after the symptoms listed in the DSM-IV-TR for the diagnoses of Attention Deficit/Hyperactivity Disorder and Oppositional Defiant Disorder. The attention deficit scale (α = 0.89) consists of 9 items and assesses disorganized and distractible behavior before the age of 12. An example of an item from this scale is, "I was easily distracted." The inhibition difficulties scale (α = 0.84) consists of five items and assesses

difficulties controlling verbal and motor behaviors as a child. An example of an item from this scale is, "I blurted out answers before questions had been completed." The oppositional behavior scale ($\alpha = 0.92$) consists of 8 items and assesses childhood anger and refusal to obey rules. An example of an item from this scale is, "I argued with adults."

Procedures

Archival Ratings. Redacted clinical files with extensive data on juvenile's histories, current adaptation, and treatment progress served as the source for ratings both of the JSORRAT-II and an extensive dictionary of critical variables.

JSORRAT-II. Trained raters scored the JSORRAT-II using information derived from each offender's archival clinical file. A subset of files was independently scored by two raters to assess reliability. An inter-rater reliability of 0.90 was obtained. JSORRAT-II scores were factor analyzed to determine what latent psychological constructs may be assessed by the actuarial.

MTC Dictionary. Using an adaptation for juveniles of the Massachusetts Treatment Center (MTC) Coding Dictionary (Knight, Cerce, Carter, & Martino, 1986) archival ratings were generated from each JSO's archival clinical file. Dynamic analogue scales were constructed to embody the traits hypothesized to covary with each of the JSORRAT-II factors. The analogue scales were used to validate the JSORRAT-II factors. Please see Table 2 for details on items in each analogue scale.

MASA. MASA scales that are hypothesized to assess the dynamic traits important in treatment planning for juveniles who sexually offend were selected to correlate with the static items that compose the four latent dimensions that emerged through factor analysis of the JSORRAT-II. The sexualization scales were chosen to represent the Sexual Offending factor; the juvenile delinquency scale was selected to represent the General Criminality factor; a temporal

abuse frequency measure was used to represent the Familial Abuse factor; and ADHD and oppositional behavior scales were employed to represent the Educational Disruptions factor.

Static scales were constructed using individual MASA items. The MASA static scales were developed to closely match the items in each JSORRAT-II factor for the purpose of validating the factor solution and to assess consistency between self-report and clinical file review measures.

Results

Factor analysis

Principle Component Factor Analysis, using the Oblimin Rotation and Kaiser Normalization was calculated using JSORRAT-II scores to determine which latent constructs might be measured by the actuarial tool. Four factors emerged from analysis of the JSORRAT-II, accounting for 38.57% of the variance in the instrument – Sexual Offending History, General Criminality, Familial Abuse, and Educational Disruptions. A summary of the JSORRAT-II items constituting each factor and their factor loadings can be found in Table 1. The Sexual Offending History and General Criminality factors are replications of factors generated from adult actuarials but the Familial Abuse and Educational Disruptions factors remain unique to the JSORRAT-II.

Factor 1 – Sexual Offending History

The sexualization MASA scale failed to correlate significantly with the Sexual Offending History factor, $r(131) = -.034$, $p = .705$. The Sexual Offending History factor also failed to correlate significantly with the corresponding MTC analogue Sexual Offending History scale, $r(128) = .028$, $p = .756$. The MASA static Sexual Offending History scale was significantly correlated with the Sexual Offending History Factor, $r(130) = .188$, $p = .032$. See Table 6 for a list of results related to the Sexual Offending History factor.

Factor 2 – General Criminality

The juvenile delinquency MASA scale, an entirely behavioral scale, was found to correlate significantly with the General Criminality factor, $r(131) = .208$, $p = .017$. The General

Criminality factor also correlated significantly with the corresponding MTC analogue General Criminality scale, $r(130) = .221$, $p = .012$. See Table 7 for a list of results related to the General Criminality factor.

Factor 3 – Familial Abuse

The temporal abuse frequency MASA scale failed to correlate significantly with the Familial Abuse factor, $r(103) = .093$, $p = .350$. The Familial Abuse factor correlated significantly with the corresponding MTC analogue Familial Abuse scale, $r(130) = .353$, $p < .001$. A moderately significant correlation was found between the MASA static Familial Abuse scale and the Familial Abuse Factor, $r(131) = .156$, $p = .076$. See Table 8 for a list of results related to the Familial Abuse factor.

Factor 4 – Educational Disruptions

The ADHD and oppositional behavior MASA scale failed to correlate significantly with the Educational Disruptions factor, $r(32) = .180$, $p = .323$. The Educational Disruptions factor correlated significantly with the corresponding MTC analogue Educational Disruptions scale, $r(124) = .526$, $p < .001$. We failed to find a significant correlation between the MASA static Educational Disruptions scale and the Educational Disruptions Factor, $r(130) = .088$, $p = .317$. See Table 9 for a list of results related to the Educational Disruptions factor.

Correlations between the exploratory static MASA scales and the analogue MTC dictionary scales were also examined. Statistically significant correlations were found between the juvenile delinquency MASA scale and the analogue general criminality scale, $r(257) = .212$, $p < .001$, the familial abuse static MASA scale and the analogue familial abuse scale $r(258) = .244$, $p < .001$, as well as the educational disruptions static MASA scale and the analogue educational disruptions scale, $r(252) = .361$, $p < .001$. A moderately significant correlation was

found between the sexual offending static MASA scale and the analogue sexual offending scale, $r(256) = .106$, $p < .091$.

Discussion

The factor analysis of the JSORRAT-II yielded theoretically cohesive factors--Sexual Offending History, General Criminality, Familial Abuse, and Educational Disruptions. The first two mapped onto parallel factors identified in adult samples, but the latter two factors were unique to the JSORRAT-II. Unlike the parallel adult actuarials (e.g., Brouillette-Alarie, Babchishin, Hanson, & Helmus, 2016), with the exception of General Criminality the factors of the JSORRAT-II did not covary with latent dynamic psychological traits, at least not the MASA constructs that were examined in the present study, despite a coherence across the archival and self-report measures used to assess juveniles who sexually offend. Although significant correlations are present and indicate consistency in the archival and self-report measures used, these results suggest that instruments like the JSORRAT-II and the MTC Coding Questionnaire which are scored through clinical file review, correlate simply because their scores are derived from the same archival data. We discuss each factor in turn.

Sexual Offending History

The JSORRAT-II items that loaded to the Sexual Offending History factor represent an overall frequency and intensity of sexual offending behavior. Residential JSOs have been found to score higher on measures of sexual drive and sexual preoccupation compared to non-sexual delinquents (Zakireh et al., 2008). For both JSOs and ASOs, preoccupation with sexual fantasy and sexual behavior mediate the frequency of coercive behaviors against adult women, peers, and children (Daversa & Knight, 2007; Knight & Sins-Knight, 2004). Both JSOs and ASOs report greater sexual compulsivity and greater sexual preoccupation along with a higher sex

drive than community control samples (MIDSA, 2011). Reviews of sexual recidivism and predictive factors in juveniles who sexually offend show that sexualization, as measured by sexual preoccupation, prior sexual charges or convictions, and paraphilic sexual interests show that sexualization has a moderate predictive validity (Hanson & Morton-Bourgon, 2004; McCann & Lussier, 2008; Worling & Långström, 2006). Despite the moderate predictive strength of sexualization, it remains a strong discriminator between juveniles in community samples and juveniles who sexually offend. Due to its discriminatory nature, sexualization is a common target of juvenile sexual offender specific treatment (Righthand & Welch, 2001, 2004). For these reasons, we hypothesized that Sexual Offending History and sexualization will covary, indicating the latent dynamic attribute of sexualization in the JSORRAT-II.

Sexualization comprises variables that are focused on the frequency and intensity of sexual fantasies and behaviors. JSORRAT-II's Sexual Offending History was found to be unrelated to the dynamic MASA measures of sexualization. An analogue MTC archivally rated scale was constructed to capture constructs related to the frequency and intensity of sexual fantasies and behavior, like sexualization, but also to capture items related to deviation in arousal target or arousal behavior, the paraphilias. Although this scale covaried with the MASA Sexualization scale, it did not correlate with the JSORRAT-II factor. In contrast, a paraphilias scale was found to correlate with the sexual criminality construct found in adult actuarials (Brouillette-Alarie, Babchishin, Hanson, & Helmus, 2016). In general, the paraphilias have been found to correlate significantly with high sexualization (Knight & Cerce, 1999). Despite the strong relationship between sexualization and paraphilias among juveniles who sexually offend, the MASA measures of sexualization and the MTC analogue scale failed to correlate significantly with the Sexual Offending History factor.

Although Sexual Offending History picks up on the static frequency of offenses in juveniles who sexually offend, it does not appear to be related to sexual preoccupation or paraphilias in juveniles. To determine what aspects of sexual offending behavior might be captured by Sexual Offending History, post hoc correlational analyses were performed to determine whether victim age preference and arousal were contributing to Sexual Offending History. Post hoc analysis showed a trend towards its covarying with the MASA Child Sexual Arousal, $r(129) = .169$, $p = .055$. Also of note was a negative correlation with impulsivity, $r(130) = -.191$, $p = .030$, suggesting the factor captures the less impulsive lifestyle of child molesters as opposed to rapists. Significant research exists delineating the differences between rapists and child molesters, along with their offending patterns (Bard et al., 1987; Daversa & Knight, 2007). Sexual Offending History may pick up the offending patterns of child molesters compared to the offending patterns of rapists. More research is required to understand the nature of this factor and the role child sexual arousal plays in it.

General Criminality

The JSORRAT-II items that loaded to the General Criminality factor represent a juvenile's prior criminal behavior and whether the individual has been sanctioned by the courts for this behavior. Criminal, or antisocial, behavior has consistently been found to covary with sexually coercive behavior (Knight & Prentky, 1993; Knight & Guay, 2006). Additionally, juveniles and adults who sexually offend are characterized by high antisociality. High levels of antisociality are a predictor of general criminal recidivism in JSOs and ASOs as well as a sexual recidivism predictor for ASOs (Knight & Prentky, 1993; Knight & Guay, 2006; Worling & Långström, 2006). Although antisocial personality characteristics do not consistently predict sexual recidivism in juveniles who sexually offend, the predictive validity of this set of

characteristics makes juvenile antisocial behavior an appropriate target for treatment (MIDSA, 2011). We hypothesized that General Criminality will covary with juvenile delinquency, representing dynamic antisocial personality characteristics in the JSORRAT-II.

Similar to parallel adult analyses, General Criminality was found to covary with juvenile delinquency, a behavioral measure of antisocial personality traits. Although antisocial personality traits have been shown to predict non-sexual recidivism in juveniles who sexually offend and adults who sexually offend, their potency in predicting sexual recidivism for juveniles who sexually offend has been less consistent, with some studies reporting antisocial behavior as a predictor of sexual recidivism for JSOs (McCann & Lussier, 2008), whereas others find no relation between general criminal offending and sexual recidivism (Worling & Curwen, 2000; Worling & Långström, 2006).

Juveniles who sexually offend, like adults who sexually offend, are heterogeneous, especially in their victim-age preferences (Knight & Prentky, 1993; Hunter, Figueredo, Malamuth, & Becker, 2003). Those individuals who offend against peer-aged or older victims have been found more likely to engage in antisocial or delinquent criminal behavior than those offending against children (Seto & Lalumiere, 2006). Delinquent, antisocial behavior may only predict sexual recidivism for those juveniles in the "rapist" subset and fail to predict sexual recidivism in the "child molester" subset, as is the case for adults who sexually offend (Knight & Thornton, 2007). Indeed, specific risk factors might, as they do for adults (Parent, Guay, & Knight, 2011), differentially predict for these subsets and their potency may be attenuated when the groups are combined.

Familial Abuse

The JSORRAT-II items that loaded to the Familial Abuse factor represent a frequency of the physical and sexual abuse experienced by the juvenile. Physical and sexual victimization experienced by JSOs plays a critical predictive role in etiological models of juveniles offending against children and offending against peer-aged females (Daversa & Knight, 2007; Knight & Sims-Knight, 2004). Although physical and sexual victimization play large roles in etiological models of sexual offending, research on the roles these events play in sexual recidivism remains inconclusive (Worling & Långström, 2006). Due to the significant effect that both physical and sexual abuse have on the etiology of sexual offending, we hypothesized that measures of abuse frequency will covary with Familial Abuse.

The hypothesized temporal abuse frequency failed to show a relation with Familial Abuse. To capture a more dynamic picture of what occurs in families with physical and sexual victimization, an analogue scale was created using MTC dictionary variables related to family stability, childhood physical and sexual abuse, childhood neglect, and sexual deviation within the family. The analogue scale showed a significant relation with JSORRAT-II's Familial Abuse factor suggesting that although there is more to the abuse experienced by juveniles than just the frequency of abusive incidents, the frequency does capture a portion of this abuse. Abuse has been found to be a complex phenomenon, and its effects vary as a function of severity (Burton, Miller, & Shill, 2002), time of occurrence (Grabell & Knight, 2009), relationship of the victim to the perpetrator (Berman & Knight, 2013), and its cumulative effects with other types of abuse (Teicher & Samson, 2013). Our results suggest that the JSORRAT-II picks up on the complexity of childhood abuse experiences above and beyond the frequency of abusive incidents.

Understanding the constellation of variables related to the abuse perpetrated on the juvenile is critical for targeting the clinical treatment for the juvenile (Knight & Sims-Knight, 2014).

Educational Disruptions

The JSORRAT-II items that loaded to the Educational Disruptions factor represent special education placement due to either cognitive deficits or behavioral deficits and educational time periods with behavior problems. Juveniles can regularly receive special education treatment following Attention Deficit Hyperactivity Disorder (ADHD) and Oppositional Defiant Disorder (ODD) diagnoses. The hallmarks of ADHD are difficulties paying attention, hyperactivity, and impulsivity while ODD is characterized by childhood anger and refusal to obey rules (American Psychiatric Association, 2000). Children and adolescents with ADHD are more likely to engage in adolescent criminal activity and adolescents with ADHD are at greater risk of antisocial behavior (Satterfield, Swanson, Schell, & Lee, 1994; Moffitt 1990; Biederman, Monuteaux et al., 2006). Researchers have found that 57% of juveniles in sexual offense specific residential treatment met the diagnostic criteria for ADHD (MIDSA, 2011). Additionally, 77% of juveniles evaluated for sexually problematic behavior met the diagnostic criteria for ADHD (Fago, 1999). Because of the prevalence of ADHD in the JSO population and the characteristic behaviors of those with ADHD and ODD, we hypothesized that ADHD and ODD will covary with Educational Disruptions.

The hypothesized ADHD and Oppositional Behavior Scales failed to covary with Educational Disruptions. Because such educational disruptions are the equifinal outcome of a number of developmental antecedents, this is not surprising. An analogue scale was created using MTC dictionary variables related to special classes, discipline problems, attention problems, attendance problems, truancy, assaultive behavior towards peers, hyperactivity, and

poor achievement in an attempt to explore in more detail the dynamic nature of what leads to educational disruptions. This analogue scale covaried with Educational Disruptions, suggesting ADHD- and ODD-type behaviors are too specific and that treatment professionals should look beyond behaviors associated with ADHD and ODD to determine the root cause of the juvenile's disruptive school behavior. Fago (2003) suggests that sexual offending behavior on the part of juveniles diagnosed with ADHD may be the result of their inherent impulsivity and the executive function deficits associated with ADHD. Should this be the case, ADHD is easily targeted in treatment through various types of behavioral therapy and pharmacological intervention.

The present study validated a theoretically cohesive four factor solution to the JSORRAT-II. Two of the factors generated by factor analysis of actuarials for adults who sexually offend were replicated on our sample of juveniles who sexually offend – one related to sexually motivated offending and one related to general criminal offending. In addition, the replicated factor General Criminality covaried with antisocial personality traits in juveniles, as it did in adults.

Limitations

The present study has several limitations--the self-report nature of MASA, the reliability of retrospective report, the size of the sample, and reliance on archival information. We will discuss each in turn.

Self Report. Self-report measures have inherited a bad reputation due to their vulnerability to response biases and dependency on the respondent's accurate memories (Berman & Knight, 2015; Knight & Sims-Knight, 2014). Nonetheless, empirical research supports the continued use of self-report measures. Self-report has been found to correlate with ratings of knowledgeable observers, with higher correlations across measures of a more easily observed

trait (Kenrick & Funder, 1988). Additionally, self-report and observer ratings produce comparable results with their intended outcome variables, even when correlations between the two measures are small (Dishion, Nelson, & Yasui, 2005). Self-report has even shown more predictive accuracy than reports made by knowledgeable observers in cases of early abuse experience (Eckenrode, Izzo, & Smith, 2007). Respondents often feel more at ease, particularly adolescent respondents, when revealing sensitive information, such as child sexual arousal or the perpetration of sexual abuse, in a computerized self-assessment like the MASA (Gribble, Miller, Rogers, & Turner, 1999). The weak, yet statistically significant, correlations derived by the present analyses may be the result of juveniles revealing more information in the self-assessment than in interviews with clinicians. The levels of disclosure being evaluated in the self-assessment versus the levels of disclosure to clinicians warrants further investigation in order to make the causal claim that juveniles revealed more information when taking the MASA compared to when speaking with observers.

Although self-report measures may be preferred when asking about sensitive information, some respondents may lie or minimize their actions, requiring that reported information be evaluated carefully. Therefore, self-report measures must be able to determine when a respondent is attempting to give socially desirable answers, in denial, or lying (Gribble, Miller, Rogers, & Turner, 1999). The MASA utilizes a set of Lie Scales that assess an individual's responses based on social desirability. All participating JSOs were ensured confidentiality and their social desirability measures indicated minimal response biases, thus minimizing the risk associated with self-report measures.

Retrospective report. The MASA is a self-report assessment that relies on retrospective data. Participants are asked to recall particular events from their past, making their disclosures

vulnerable to an array of possible distortions like memory failures and biased recollection of stressful experiences (Widom, Raphael, & DuMont, 2004). Individuals have the potential to remember and inaccurately reinterpret or distort memories based on their current experiences. Because the MASA ask about particular events, not attitudes or feelings, it is likely that participants' recall was more accurate (Henry, Moffitt, Caspi, Langley, & Silva, 1994).

Low power of the small N. The current sample is small and has limited power to detect weak effects. We currently have 141 JSOs assessed on this project using the JSORRAT-II. Consequently, we will continue to add new cases until we are able to analyze the entire sample, which will provide improved power.

Archival data source. Whereas self-report data depend exclusively on respondent's memories and subjective responses, data garnered from clinical file review relies on the researcher's interpretation of clinical interviews, parental reports, police reports, victim descriptions of crimes, diagnostic and psychometric assessments, and external reports from schools or previous treatment facilities. The content of clinical files varies amongst treatment facilities and amongst JSOs. For example, some treatment facilities maintain copies of a JSO's criminal history and their school records while other facilities have records of a JSO's treatment progress and psychological testing. Therefore, clinical file review for each JSO contains a unique set of information and is not standard across cases, sometimes making assessment complicated. Data in archival clinical files frequently comes from the treating clinician's interpretation of the individual in treatment. As researchers, we must parse clinical judgment from fact to protect against introducing error into the assessment (Dawes, Faust, & Meehl, 1989).

Conclusions

In general, the results of the present investigation suggest that the utility of the JSORRAT-II should be confined to its ability to provide a generic indication of adolescents risk levels to guide the overall allocation of treatment resources. Its use as an identifier of specific, dynamic, changeable traits as treatment targets, except possibly its suggestion that generic criminality is a problem, is severely limited. The JSORRAT-II's development and validity protocol states it is best used in conjunction with other psychological and needs assessments to inform clinical and forensic decisions about disposition and treatment planning (Epperson & Ralston, 2015). The results of the present study confirm the necessity of other assessment instruments used in concert with the JSORRAT-II for treatment planning (cf. Knight & Sims-Knight, 2014). The JSORRAT-II should not be used for singularly determining a treatment plan or dispositional decision until more research has been performed regarding its potential utility in these cases. Clinicians and forensic evaluators must proceed with caution when using this measure in planning interventions, because although the JSORRAT-II appears to reflect static, immutable historical events in the youths' lives, its mapping onto identifiable, mutable dynamic traits that are useful for treatment planning remains to be established.

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Table 1
JSORRAT-II Factor Structure

JSORRAT-II item	Sexual Offending History	General Criminality	Familial Abuse	Educational Disruptions
Number of adjudications for sexual offenses	0.894			
Number of different victims in charged sexual offenses	0.869			
Length of sexual offending history	0.642			
Deception or grooming in charged sexual offense	0.367			
Under court ordered supervision when charged sexual offense committed		0.686		
Number of adjudications for non-sexual offenses		0.521		
Total officially documented incidents of sexual abuse			0.645	
Total officially documented incidents of physical abuse			0.353	
Total educational time periods with discipline problems				-0.563
History of special education placement				-0.364

Table 2
Scale construction

Factor	JSORRAT-II Items	MASA Dynamic Scale	MASA Static Scale Items	MTC Analogue Static Scale Items
Sexual Offending History	• Total adjudications for sex offenses • Total different victims in charged sex offenses • Length of sexual offending history • Deception or grooming in charged sex offense	Sexualization Scale	• Charged or convicted of sex offense before age 17 • Charged or convicted of a contact sexual offense before age 17	• Sexual aggression • Promiscuity • Fetishism; exhibitionism; voyeurism; frotteurism; bestiality; scatalogia • Preoccupation with sexual thoughts and acts • Preoccupation with sadistic thoughts
General Criminality	• Under court ordered supervision when charged sex offense committed • Total adjudications for non-sex offenses	Juvenile Delinquency Scale	Modified Juvenile Delinquency Scale	• Arson; vandalism • Cruelty to animals • Running away • Fighting; aggression • Preoccupation with aggressive thoughts • Non-sexual victimless offenses • Faulty judgment; impulsivity • Homicide
Familial Abuse	• Total officially documented incidents of sexual abuse • Total officially documented incidents of physical abuse	Maximum Temporal Abuse Frequency	• Number of sexual abusers • Frequency of physical abuse	• Family stability • Childhood physical abuse • Childhood sexual abuse • Childhood neglect • Sexual deviation in family
Educational Disruptions	• Total educational time periods with discipline problems • History of special education placement	ADHD and Oppositional Behavior Scale	• Total years of special education • Behavior or discipline problems • Skipping school, chronic truancy • Detention or suspensions for school behavior	• Special classes • Discipline or attendance problems • Juvenile conduct or behavioral charges • School problems due to assault on peers • Hyperactivity; attention problems; poor achievement; truancy

Note. A detailed construction of each scale corresponding to each JSORRAT-II factor is shown. The individual items taken from each type of assessment are represented.

Table 3
Cronbach's Alphas for MASA Dynamic Scales

Variable	α
Sexualization	
Sexual Compulsivity	0.85
Sexual Preoccupation	0.90
Hypersexuality	0.69
Juvenile Delinquency	0.90
ADHD and Oppositional Behavior	
Attention-Deficit	0.89
Inhibition Difficulties	0.84
Oppositional Behavior	0.92

Note. Internal consistencies were not calculated for Maximum Temporal Abuse Frequency as it a purely a frequency count and not a dependent outcome.

Table 4
Cronbach's Alphas for MASA Static Scales

Variable	α
MASA Sexual Offending History Static Scale	0.82
MASA Familial Abuse Static Scale	0.29
MASA Educational Disruptions Static Scale	0.47

Table 5
Cronbach's Alphas for MTC Analogue Scales

Variable	α
MTC Sexual Offending History Analogue Scale	0.73
MTC General Criminality Analogue Scale	0.94
MTC Familial Abuse Analogue Scale	0.76
MTC Educational Disruptions Analogue Scale	0.81

Table 6

Correlations for scales related to JSORRAT-II Sexual Offending History Factor

	1.	2.	3.	4.
1. JSORRAT-II Sexual Offending History Factor	1			
(*n*)	(130)			
2. MASA Sexualization Scale	-0.034	1		
(*n*)	(130)	(307)		
3. MASA Sexual Offending History Static Scale	0.188*	0.094†	1	
(*n*)	(130)	(307)	(307)	
4. MTC Sexual Offending History Analogue Scale	0.028	0.305**	0.106†	1
(*n*)	(129)	(256)	(256)	(256)

Note. $^{\dagger}p \leq 0.10$; $*p \leq 0.05$.

Table 7

Correlations for scales related to JSORRAT-II General Criminality Factor

	1.	2.	3.
1. JSORRAT-II General Criminality Factor	1		
(*n*)	(131)		
2. MASA Juvenile Delinquency Scale	0.208*	1	
(*n*)	(131)	(307)	
3. MTC General Criminality Analogue Scale	0.221*	0.212**	1
(*n*)	(130)	(257)	(257)

Note. *$p \leq 0.05$; **$p \leq 0.01$.

Table 8

Correlations for scales related to JSORRAT-II Familial Abuse Factor

	1.	2.	3.	4.
1. JSORRAT-II Familial Abuse Factor	1			
(*n*)	(131)			
2. Maximum Temporal Abuse Frequency Scale	0.093	1		
(*n*)	(103)	(213)		
3. MASA Familial Abuse Static Scale	0.156†	0.423**	1	
(*n*)	(131)	(213)	(307)	
4. MTC Familial Abuse Analogue Scale	0.353**	0.109	0.244**	1
(*n*)	(130)	(176)	(258)	(258)

Note. $^{\dagger}p \leq 0.10$; $*p \leq 0.05$; $**p \leq 0.01$.

Table 9

Correlations for scales related to JSORRAT-II Educational Disruptions Factor

	1.	2.	3.	4.
1. JSORRAT-II Educational Disruptions Factor	1			
(*n*)	(130)			
2. MASA ADHD and Oppositional Behavior Scale	0.180	1		
(*n*)	(32)	(179)		
3. MASA Educational Disruptions Static Scale	0.088	0.433**	1	
(*n*)	(130)	(179)	(307)	
4. MTC Educational Disruptions Analogue Scale	0.526**	0.359**	0.361**	1
(*n*)	(124)	(147)	(252)	(252)

Note. $^{**}p \leq 0.01$.