A longitudinal study of factors predicting outcomes in a residential program for treating juveniles who sexually offend

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Abstract

Aim/Background: The study investigates factors that predict outcomes in a program for juveniles who sexually offend.
Material/Methods: The sample consisted of 129 consecutive admissions from 2006 to 2012 to a residential program for treatment of juveniles who sexually offend. Three program outcomes were used, termination, graduation, and sexual acting out in the program. Background/history, sexual offense history, treatment factors, DSM-IV TR diagnoses, and the JSORRAT-II were used to predict program outcomes. Univariate and multivariate analyses were used.
Results: Univariate analyses were conducted with outcome measures. Age of youngest victim was the only variable associated with termination. Not being in special education and having no male victims were associated with higher graduation rates. Having male victims, having a diagnosis of PTSD, one item from the JSORRAT-II (the number of officially documented incidents of being a victim sexual abuse), the total JSORRAT-II score, and having mental health treatment before admission were associated with higher levels of sexual acting out in the program. Multivariate analyses showed having both a male victim and a prior history of mental health services were associated with sexual acting out with an AUC=.74.
Conclusions: Analyses showed that patient or treatment factors were related to graduation, termination, and sexual acting out in the program. These findings if replicated, might form a basis for improving patient outcomes.

Keywords: Adolescent, sex, offending, treatment, residential, outcomes

Introduction and Literature Review

A significant percentage of those who sexually offend are adolescent males. In 2012, juveniles under the age of 18 were responsible for 17% of all reported forcible rapes and other sex offenses in the United States (Federal Bureau of Investigation, 2012). However, with crimes of a sexual nature being largely underreported, juveniles may be responsible for 30-50% of all sexual offenses committed (Charles & Mcdonald, 2005). Sexual offending during adolescence increases the likelihood of continuing sexually harmful behavior into adulthood. Retrospective studies indicate that half of all convicted adult sex offenders committed one or more sexual crimes before the age of 18 (Abel, Mittelman, & Becker, 1985; Righthand & Welch, 2001), with the offender's first transgression occurring around age 13 (Veneziano & Veneziano, 2002).

Research has consistently reported a high rate of attrition among JSO treatment programs. Residential Programs for Juvenile Offenders (1995) concluded that completion rates among Minnesota JSO programs range only between 30-50%, while Kahn and Chambers (1991) found that just 25% of their sample population of JSO youth had adequately completed their treatment goals at

the time of discharge. Hunter and Figueredo (1999) reported that up to 50% of youth entering a community-based treatment program were expelled during the first year. Of those expelled, sexual maladjustment was shown to be significantly higher than those who remained in the program longer than 12 months.

Reitzel and Carbonell (2006) conducted a meta-analysis of nine studies of JSO treatment with a total sample size of 2968 youth, primarily male. Sexual recidivism of the total sample was 12.53%, compared to 20.40% for other/unspecified, non-sexual recidivism, and 28.51% for non-violent, non-sexual recidivism. Comparing those who received treatment versus those receiving no treatment, the sexual recidivism rates were 7.37% versus 18.93% using an unweighted average. Worling, Litteljohn, and Bookalam (2010) reported a 20-year follow-up with 148 youth. The treatment group had a 20-year arrest rate of 9% compared to 21% for the comparison group for sexual offenses, and 35% versus 54% arrests respectively for any offense. The findings from those studies suggest that youth who had no treatment have a higher rate of recidivism for sexual and non-sexual crimes.

Epperson and colleagues (Epperson, Ralston, Fowers, DeWitt, & Gore, 2006) conducted research to develop items for selection for the Juvenile Sexual Offense Recidivism Risk Assessment Tool-II (JSORRAT-II). Nearly all youth in Utah with sustained sexual offenses from Utah from 1990- to 1992 were studied by means of a chart review. One item included was offender treatment prior to the most recent offense, and subsequent rates of sexual recidivism were reported. For youth with no treatment prior to the most recent offense, the rate was 8.5%, for those who had prior treatment and had no treatment failures, the rate was 26.7%, and for those who had one or more treatment failures the rate was 80.0%. Treatment failures in this sample were associated with a much higher rate of sexual recidivism.

Some studies have reported on not only outcomes, but also what factors influenced outcomes. Kraemer, Salisbury and Spielman (1998) examined which pretreatment variables predict JSO treatment outcomes. Using pretreatment demographics and personality psychometric test variables of JSO youth in a residential program, they found that client age and impulsivity predicted treatment failure with 76.9% accuracy. Noncompleters were typically older than completers (M=15.54 vs. M=14.22) and scored significantly higher on the impulsivity subscales of the Jensness Inventory (Jesness, 1996, 1991). No differences of IQ, referral source, ethnicity, and grade level were found between completers and noncompleters. Seabloom, Seabloom, Seabloom, Barron, and Hendrickson (2003) reported a 14- to 24-year longitudinal study of a comprehensive treatment program for adolescent sex offenders. The sample had 122 male JSOs. Program graduates had no arrests or convictions for sex-related crimes. Arrests and convictions for other non-sexual crimes for graduates were significantly less when compared to those who had not graduated. Living with parents positively correlated with successful completion of the program. A study by Eastman (2005) assessed the likelihood of treatment success or failure of 138 JSOs in a residential treatment program. Findings of this study concluded that fewer instances of the youth having a sexual abuse history and higher scores on self-esteem measures were positively correlated with treatment completion. Higher cognitive distortions and a lower level of intellectual functioning were also found to strongly discriminate between treatment completers and noncompleters or those yet untreated.

Only one study was identified which examined rates and predictors of sexual aggression during treatment. Viljoen et al. (2007) reported a study of 169 male youth admitted to a residential adolescent sex offender program. Only youth who had resided longer than 250 days were included in the study. Twenty-eight youth (16.6%) engaged in sexual aggression during the program. The Juvenile Sexual Offense Recidivism Risk Assessment Tool-II (J-SORRAT-II), Structured Assessment of Violence Risk in Youth (SAVRY), and Juvenile Sex Offender Assessment Protocol-II

(J-SOAP-II) were used to predict treatment outcomes. Only the Sexual drive/preoccupation subscale from the J-SOAP-II showed a significant relation to sexual aggression during the program, with an AUC= .65 (95% .55-.76).

The purpose of the current study is to explore predictors of treatment outcome in a residential treatment program for JSO youth. Results may be useful in promoting better treatment outcomes.

Materials and Methods

Procedure and Measures

Information was obtained from a chart review of all youth admitted to Teen Triumph from 2006 to 2012. The chart included information from the referral agency, an admission interview, quarterly reports, progress notes from mental health and residential staff, and discharge summaries. Information included demographic, background and referral history. It also included psychiatric diagnoses, discharge information, and information regarding sexual acting out in the program. The JSORRAT-II (Epperson, et al., 2006) was completed at the time of admission. The psychiatric diagnosis was provided by a consulting child psychiatrist. Information regarding whether the youth graduated, was terminated, or discharged before graduation was included in the study. Specific criteria for categorization for each variable in the chart review were developed. For example, sexually acting out was defined as any sexual contact with another whether there was consent or not, threats of nonconsensual sexual activity, or notable exhibitionism.

Subjects

Subjects were 129 consecutive male admissions to a residential treatment program for youth with sexual offending problems, Teen Triumph in Stockton, California. Ninety-percent of these youth had sustained sexual offenses and were referred by county probation departments. The rest were referred by social services and others, but these youth did not have a sustained sexual offense charge, but had a history of significant sexual aggression towards others. All the referrals were from Northern California, primarily the San Francisco Bay Area, Sacramento, and San Joaquin Valley areas.

Demographic Characteristics

The average age of patients was 15.5. Thirty-eight point eight percent were White, 33.3% were Black, 23.3% were Hispanic, and 9.0% other. Fifty-five point eight percent had an Individual Education Plan which is for youth with documented educational or emotional handicaps. Forty-three point two percent of youth had prior mental health treatment and 83.1% had used psychiatric medications at any time. Eighty-nine point nine percent were referred for placement by a county probation department, 8.5% by county social services, and 1.6% by other. Twenty-seven point one percent were living with both parents at admission, 27.1% with the mother only, 4.7% with the father only, 17.1% with a grandparent, and 24% with someone else. Fifty-seven point nine percent had at least one parent with a history of substance abuse problems and 42.6% of parents had a criminal history.

Offense Characteristics

Ten point five percent had a prior sexual offense before the most recent offense, 38.3% had multiple victims, 55.8% had a relative victim, 41.4% had at least one male victim, and 75.6% used

force. The average age of the youngest victim was 8.0 years.

DSM-IV TR Diagnoses

Diagnoses were made by child psychiatrists using criteria from the *Diagnostic and statistical manual of mental disorders (4th ed., text rev.)* (DSM-IV-TR) (American Psychiatric Association, 2000). Youth could have more than one diagnosis. The following are the percent of each diagnosis found: attention deficit disorder 39.7%, posttraumatic stress disorder 34.9%, depressive disorders 30.2%, conduct disorder 27.8%, anxiety disorders 11.9%, bipolar and mood disorders 8.5%, adjustment disorders 4.8%, and oppositional defiant disorder 1.6%. One youth, 0.8%, had a DSM-IV TR diagnosis of pedophilia, and no other sexual disorders were diagnosed for this sample. Forty-one point nine percent had mental health treatment before placement, and 79.8% were ever on psychiatric medications. One case was discharged before a psychiatric assessment could be completed.

JSORRAT-II Characteristics

The JSORRAT-II (Epperson, et al., 2006) was scored for youth shortly after admission and was available for 122/129 youth. Consistent with the rules of this instrument, information from the youth's file was used for scoring. Analysis of individual items was useful since these items also contained important background information. The average JSORRAT-II score for this group was 6.3 which rates in the moderate risk category with a 24.3% risk of sexual recidivism based on the original Utah validation sample. The mean for those referred by probation only was 6.4 (n=112), and for those referred by social services or other was 5.1 (N=10). The JSORRAT-II has norms for risk evaluation and are valid only with youth for sustained sexual offenses less than 18, but a score can be obtained for other youth.

Program Factors and Outcomes

Forty-point three percent successfully graduated by completing all program requirements. Twenty-six point four percent were discharged before all graduation criteria were completed primarily because of non-treatment administrative decisions by probation or social services, for example, the youth in their senior year of high school had become 18 and "aged out." Thirty-two point six percent were terminated because of some major infraction such as noncooperation with the program. Twenty point six percent of youth had an episode of significant sexual acting out during treatment. Youth were terminated primarily because of noncompliance with the program or eloping and not returning. Graduation required completion of a structured treatment curriculum. Significant sexual acting out was defined as any act of sexual behavior with another resident, whether it was consensual or nonconsensual, or might be charged as a sexual crime. These sexual misbehaviors violated the rules of the program and probation, and some could have been charged as crimes. In fact, none on these incidents led to charges being filed.

Forty point three percent of youth had a polygraph and 20.9% completed 30 sessions of Aggression Replacement Training (ART), an evidence-based prosocial skills and reasoning intervention (Goldstein, Glick, & Gibbs, 1998). The average length of stay in the program was 497 days. The relation between termination, sexual acting out, and graduation was examined. For youth who were terminated, 21% did not sexually act out, and 20% did, suggesting that this was not a factor in termination. Likewise for youth who graduated, 20% did not sexually act out, and 22% did, also suggesting that these variables weren't associated. Termination was linked to noncooperation in the program, and graduation was linked primarily to completing all the required curriculum.

Research Design

The research analysis examined whether program outcomes were related to patient or program factors. The program outcomes were whether youth admitted to the program: 1. Were terminated, 2. Graduated, or 3. Had an episode of significant sexual acting out during the program.

Results

Factors Predicting Treatment Outcomes

The research analysis examined program outcomes related to patient characteristics. Outcomes assessed were program termination, graduation, and also sexual acting out in the program. Analyses were conducted examining factors predicting treatment outcomes. The NCSS statistical package was used for all analyses (Hintze, 2013). Univariate analysis for independent binary factors was done using the odds ratio as the statistic of association. Fisher's Exact Test was used to calculate a two-tailed probability level which is a conservative choice. A two-tailed level assesses whether the odds ratio is significantly less or greater than 1.0. A one-tailed test could have been appropriately used for factors where the hypothesis was that the odds ratio was greater than 1.0 or alternatively less than 1.0. Analysis for continuous factors was done using logistic regression also using a two-tailed test. Both types of odds ratios can be compared using a standardized odds ratio, which is the absolute odds ratio for a one standard deviation change in the independent variable. An effect size can also be calculated, and .80 or greater is considered a large effect size, and .50 is considered medium. Cohen (1988) described an effect size of .50 as medium as visible to the naked eye such as the differences between the height of 14-year-old girls and 17-year-olds, and an effect size of .80 is large, and grossly perceptible and equivalent to the difference between 13-year-old girls and 17-year-olds. The method recommended by Chinn (2000) was used to convert odds ratio to effect size.

The results are shown in Table 1 (→ www.sexual-offender-treatment.org/fileadmin/download/sot-02-2015/ralph_T01.pdf). The three outcome or dependent variables are in the columns of the table: Termination from Program, Program Graduation, and Sexual Acting Out in Program. The rows of the table are the independent variables and are grouped by categories: Background/history, Sexual offense history, Treatment factors, DSM-IV TR, and JSORRAT-II items and total score.

Age of youngest victim was the only variable associated with termination. Not being in special education and having no male victims were associated with higher graduation rates. Having male victims, having a diagnosis of PTSD, one item from the JSORRAT-II (the number of officially documented incidents of being a victim of sexual abuse), the total JSORRAT-II score, and having mental health treatment before admission were associated with higher levels of sexual acting out in the program. Table 1 also shows the odds ratio for each independent variable. For example, having a male victim has an odds ratio of 4.3 which means that a youth with a male sexual victim is 4.3 times more likely to have an episode of sexual acting out in the program compared to those who didn't have a male victim.

These univariate analyses were complemented by multivariate analyses (that is using more than one variable) using logistic regression for the three outcome variables. This produced an odds ratio for the multivariate model. Only statistically significant independent variables from the univariate

analyses were used for the logistic regressions. Models were selected for these regressions only when all independent variables were significant in the regression analysis. A forward selection process with switching was used. Only one logistic regression model had two or more variables significant, using sexual acting out as the outcome variable. This was having male victims and prior mental health treatment before admission as the independent variables. The results are shown in Table 2 (→ www.sexual-offender-treatment.org/fileadmin/download/sot-02-2015/ralph_T02.pdf) and the AUC statistic for this model was .74.

Discussion

A study was conducted with 129 consecutive male admissions from 2006 to 2012 to a residential treatment program for youth with sexual offending problems, 90% of whom had sustained sexual offenses. The association of patient factors with program outcomes was investigated. Program outcomes were: 1. Termination, 2. Graduation, and 3. Sexual acting out. Patient characteristics were studied related to program outcomes, using both univariate and multivariate methods and the odds ratio statistic. Termination from a program represents a treatment failure for the youth, but also means the program was not able to retain them and be successful for the youth. Treatment failure is associated with a much higher risk of sexual recidivism than youth who complete treatment (Epperson, et al., 2006). Likewise graduation from or completion of a JSO program in other studies was also associated with positive outcomes (Seabloom, et al., 2003; Eastman, 2005). Sexual acting out while in treatment, is a problematic behavior in and of itself, which may also make the youth a higher risk for sexual recidivism. The rates for the three treatment outcomes observed in this study, successful treatment completion (40.3%), termination, (32.6%), and sexual acting out (20.6%) were comparable to previous findings described above, for example (Kraemer et al., 1998; Anaforian, 2009; Viljoen et al., 2008).

Age of youngest victim was associated with termination but there was no self-evident reason why the two factors were associated. Not being in special education and having no male victims was associated with higher graduation rates. Not being in special education might indicate a greater ability to understand and comply with the structured residential program compared to those not in special education. Having a male victim in other studies had been associated with adverse outcomes. For example, "male victim" is one of the risk factors on the Static 99 (Hansen, 1999). It was also included in the pool of initial items used to develop the JSORRAT-II. Factors associated with sexual acting out included having male victims, a diagnosis of PTSD, having prior mental health treatment, the number of documented incidents of being a victim of sexual abuse, and the total JSORRAT-II score. A multivariate model indicated that having a male victim and also prior mental health treatment were both significant in the logistic regression. A youth with both of these characteristics was significantly more likely to have an episode of sexual acting out in the program, and an AUC of .74. Using this model if a youth had none of these characteristics (e.g., no male victims and no prior mental health treatment), they had a probability of 21.5% of sexual acting out versus 77.1% if they had both characteristics. Replication of the present study would have to be done to see if this finding is robust.

Also supporting the previous finding that pedophilia is rarely seen with the JSO population (Ralph & Wong, 2013), Only one youth (.8%) was given the diagnosis of pedophilia, consistent with previous findings that his is rarely seen in JSO populations (Ralph & Wong, 2013). The tabulation of DSM-IV TR diagnoses in the study sample also contributes to our understanding of comorbid conditions, which included multiple diagnoses. ADHD, PTSD, depressive disorders, and conduct disorder were each all greater than a 25% prevalence for this sample. Of those evaluated for a psychiatric

condition, 13/126 or 10.3% of the population had no diagnosis. When conduct disorder and adjustment disorders were excluded, 24/126 or 19.0% had no psychiatric diagnosis. While the rate appears high, it was consistent with findings of the Commission on Youth, Commonwealth of Virginia (2011) which reported up to 80% of JSO youth have a diagnosable psychiatric disorder, and 30% to 60% exhibit learning disabilities and academic dysfunctions. As the JSORRAT-II scores indicate, however, the sample studied is a high risk population for sexual recidivism, and it might be expected that this might be associated with higher levels of psychiatric conditions. There was no evidence that there might have been any bias to over-diagnose youth in this setting.

The findings regarding the JSORRAT-II scores (Epperson, et al., 2006) are also a contribution to the literature on this instrument. It had been used in Utah and Iowa for predicting sexual recidivism. The most recent study in Iowa showed an AUC statistic of .65. The AUC statistic for this scale in the study sample regarding sexual acting out was .61. The probability of sexual acting out, using the logistic regression model for various JSORRAT-II scores were: 0 was 25.3%, 4 was 39.1%, 8 was 54.8%, 12 was 69.7%, and 16 was 81.3%. In this sample JOSRRAT-II scores ranged from 0 to 18. This suggests that the JSORRAT-II might be a measure of an underlying psychological trait connected to a general propensity to sexually act, not only related to sexual recidivism. This contrasts with the Viljoen et al. (2008) study which found no such association with the JSORRAT-II and a similar factor, sexual aggression in a program.

Two treatment factors were studied with this research which intended to promote better treatment outcomes, polygraphy and ART. In a survey of JSO providers in California 91.4% of providers used polygraphy with juveniles (California Coalition on Sexual Offending, 2013). In the study sample, 43% of youth had a polygraph but it wasn't significantly associated with any of the three program outcome variables. This finding is consistent with a literature review of this topic (California Coalition on Sexual Offending, 2013) which notes for JSO populations, "There is no current research demonstrating that the use of polygraph is associated with better treatment outcomes." Twenty point nine percent of youth in the study participated in ART. This is a 30 session evidence based intervention, with multiple replications, with both the general probation population, and also with JSO youth specifically. The statistical test used in the study was two-tailed, meaning that it would account for either higher or lower risk of sexual acting-out. The p value for this variable was .0632 which suggests a trend near significance. A one-tailed test might be considered more appropriate since it would be assumed that this intervention would be associated with a lower risk of sexual acting out. If a one-tailed test was used for this intervention, the p-value using the Fisher's exact test was .042. The odds ratio for this variable was 0.25, meaning that if the youth participate in ART they would have 1/4 the risk of sexually acting out.

Each of the factors identified as related to program outcomes describes opportunities for intervention by a program manager. For example, the finding that special education youth had about one third the odds of graduating from the program compared to those who did not, suggests that additional help might be provided for this population. Are some of the barriers to program graduation connected with the reading level, complexity, or amount of work for program graduation? Also, youth who had a male victim had over four times the risk of significant sexual acting out in the program. Also having a male victim meant the youth was 2.1 times as likely to not graduate from treatment. Staff might target youth with these characteristics for extra help, structure, and monitoring to reduce adverse outcomes. Targeting such variables based on outcome research such as this is similar to the "Responsivity" principle (Hanson, Bourgon, Helmus & Hodgson, 2009) by adapting the treatment to the characteristics of the youth. Evidence based treatment methods are important, but "fine tuning" treatment as described above has the potential to produce better outcomes.

In summary, the present study identified factors which may provide opportunities for intervention to reduce treatment failure rates from JSO programs. Reducing treatment failure rates is in turn important because treatment failures are a factor associated with increased sexual recidivism. Sexual acting out in the program, similar to a relapse, in chemical dependency treatment, represents a treatment failure and likely an increased risk of problematic sexual behaviors after discharge. In addition, the study provides a model for program evaluation that might be emulated by program directors to improve treatment outcomes.

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