Sex offenders and criminal recidivism: an exploratory trajectory analysis using a Virginia sample

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ABSTRACT

Several polices have been implemented in an effort to prevent sex offenders from recidivating. Many of these policies apply equally to all sex offenders, assuming that sex offenders are a homogenous group. Research has approached the study of sex offender recidivism rates similarly; not considering the possibility that sex offenders are comprised of distinct groups who have different risks of reoffending. The current study examines trajectories for a sample of sex offenders (*N* = 500) in Virginia and assesses the recidivism rates for each group. The results indicate three groups of offending paths exist. Subsequent analysis also revealed that sex offenders who follow a consistent path of sex offending are more likely to recidivate and commit violent, property, and drug offenses. A discussion of the implications of these findings is also presented.

Concern over the dangerousness of sex offenders has led to a number of policies and laws. In efforts to prevent recidivism, many states have passed policies specifically aimed at punishing sex offenders, with the intent of preventing those who have committed a sex offense from recidivating. These polices include such things as chemical castration and civil commitments in mental facilities after an offender's release from prison. In addition, every state currently requires sex offenders to register their addresses with law enforcement and to surrender DNA samples upon conviction (Stevens 2001). Although registration laws were originally intended to control persons who had sexually victimized children, since 2000, they have been expanded to include persons who have victimized children and adults in various manners (Sample and Bray 2006). This expansion is indicative of the widely held belief that sex offenders are similar and have equally high risks of reoffending.

The belief that sex offenders are more dangerous than other offenders and highly likely to commit another sex crime has been questioned by academics who study recidivism rates of sex offenders. Their examinations into recidivism rates for sex offenders have produced evidence contrary to this belief, commonly finding that the rates of recidivism by sex offenders are typically lower than the rates of other offenders (e.g., Sample and Bray 2003). Despite the fact that sex offender policies typically apply to all sex offenders, subjecting them all to the same community-based punishments, research has also questioned the belief that all sex offenders are a homogenous group and are equally dangerous. These studies have considered the possibility that offenders can be categorized into subgroups that have different rates of recidivism (e.g., Sample and Bray 2006, Tewksbury and Jennings 2010).

The present study will further explore significant predictors of sex offender recidivism of not only sex crimes, but criminal behavior overall, while separately examining different groups of sex offenders. A review of the current literature will be presented next, followed by an explanation of the methods and analysis. The results will then be discussed, and the article concludes with a review of the findings and a discussion of their implications for sex offender policies.

REVIEW OF THE LITERATURE

Although it is widely believed that sex offenders recidivate at a higher rate than most other offenders, research has not supported this claim. For example, Furby et al. (1989) reviewed 42 studies that examined recidivism rates of offenders. They found that sex offenders recidivate at a rate of about 12%, with a range of 3.8–55.6%. They concluded that the variation across the studies was remarkable and by selectively choosing various studies, any conclusion could be made (Furby et al. 1989, p. 27). Or stated differently, the evidence was not conclusive that sex offenders were more likely to recidivate compared to other offenders, and vice versa.

Hanson and colleagues have found a varying range of recidivism rates for sex offenders in multiple studies. Hanson and Bussière's (1998) meta-analysis indicated that recidivism rates of sex offenders in a four- to five-year average follow-up time were 13.4%. Further, Hanson and Morton-Bourgon's (2005) review of 82 sex offender recidivism studies produced a similar result. Their analysis found that 13.7% of sex offenders committed another sex offense. Sex offender

rates of recidivism were higher for general recidivism (36.2%) and violent non-sexual crimes (14.3%) than for sex crimes. Finally, Hanson et al. (2009) also conducted an updated review of 23 sex offender recidivism studies. They found that sexual recidivism rates were less than 11% for treated offenders and approximately 19% for untreated sex offenders. Their examination of general recidivism found that treated sex offenders had a 31.8% recidivism rate and non-treated sex offenders had a 48.3% recidivism rate.

In addition, research has compared sex offenders to other types of offenders. Sample and Bray (2003) examined sex offender arrest data from the state of Illinois from 1990 to 1997 to determine whether 'gateway' crimes (e.g., robbery and burglary), which precede sexual offending, existed. Their analysis revealed that sex offenders had relatively low offense-specific rates of recidivism compared to the different types of offenders examined. Only 6.5% of sex offenders committed another sex offense, while 23.1% of burglars were rearrested for another burglary, 17.9% of robbers were rearrested for another robbery, and 21.4% of public order offenders were rearrested for a public order offense. The only categories that had lower crime-specific re-arrest rates were offenders of homicide (5.7%), kidnapping (2.8%), and stalking (5%). Sex offenders were, however, the most likely group to have a rearrest for a sex offense in the five-year follow-up period. When general recidivism was examined, 45.1% of sex offenders were rearrested within the five-year follow-up period. Those who committed robberies (74.9%), burglaries (66%), nonsexual assaults (58%), and larcenies (52.9%) had higher rates. Sample and Bray also found that although sex offenders were typically incarcerated for longer amounts of time, their lower rates of recidivism could not be explained by diminished opportunity alone.

Differences across types of sex offenders

A gap exists in the research regarding the exploration of types of recidivism of sex offenders that examines sex offenders as a diverse group. Thornton (2006) investigated the criminal behavior of 752 sexual offenders in England and Wales over the course of 10 years to determine whether age of release resulted in different patterns of offending. He found that sexual offenders who were released from prison at a younger age were more likely to be general criminals, compared with those released at an older age, who were more likely to be sexual offender specialists. This potentially indicates that offenders who committed less serious sex crimes (hence being released at a younger age) were more likely to explore other avenues of criminality compared to those who were committed for more serious sex crimes.

Other studies have explored the possibility that sex offenders' rates of recidivism may vary by the type of victim that the offender chooses. This research has often found higher recidivism rates among offenders who target adults than for offenders who target children (Marques et al. 1994, Quinsey et al. 1995, 1998, Hanson and Bussière 1998, Sample and Bray 2006). Additional research has examined differences by victim gender (e.g., Soothill et al. 2000) and type of crime (Romero and Williams 1983, Sample and Bray 2006). Several studies also have found that rates of offending vary by the age of the offender. This research indicates that sex offender recidivism decreases with age (Hanson 2002, 2006, Barbaree et al. 2003, Fazel et al. 2006, Thornton 2006, Prentky and Lee 2007, Skelton and Vess 2008). Doren (2006) also found

an inverse relationship between age and recidivism, and argued that age actually served as a surrogate for other variables (e.g., libido, maturity, impulsivity, and physical vitality). Knight and Thornton (2007) also found that the rate of recidivism varied by age, but in the opposite direction. Although their analysis showed that those over 60 had the lowest rates of sexual offending, prior to age 60 increases in age were found to increase the likelihood of sexual recidivism. Overall, this research indicates that sex offenders are not a homogenous group, and their rates of reoffending vary. It is important, therefore, that differences in offending patterns be considered when studying recidivism rates.

Most recently, Tewksbury and Jennings (2010) also accounted for possible differences in sex offenders. Their study was focused on examining the effectiveness of community notification laws and utilized a sample of offenders who were not subjected to community notification and a matched sample of offenders who were subjected to notification. Using semiparametric group-based trajectory models they found three distinct trajectory groups among sex offenders in Iowa. The first group consisted of nonrecidivist sex offenders; the second group was low-rate sex recidivists, and the third group contained a small number of high-rate recidivating sex offenders. The same three groups were found in a sample of sex offenders subject to community notification and in the matched sample of sex offenders not subject to community notification. Therefore, the results indicated that trajectory groups' rates of recidivism were not affected by the use of a community notification system.

CURRENT STUDY

The purpose of this study is to address the above-referenced gap in the literature by examining significant predictors of sex offender recidivism of not only sex crimes, but criminal behavior overall. The next section will present the methods used in the study, followed by the results of the analysis.

METHODS

Data

Data for the present study were obtained from the Virginia State Police Department. A random sample of 500 sex offenders was drawn in the state of Virginia from the population of all sex offenders who had an arrest for a sex offense between the years 1993 and 2007. For each offender in the dataset, all prior arrests committed by the offender were included as well as their age, gender, and race. The data also included information on all subsequent arrest after the sex offense.

For the current research purposes, arrest data are preferred over conviction data. Because sex crimes are subjected to additional punishment (such as having to register), conviction data can be subject to the downgrading of charges through plea bargaining. Arrest data, therefore, can be more reflective of the actual offense. There are, however, a few limitations to using arrest

data. First, these data are limited to offenses that came to the attention of law enforcement. Prior offenses and subsequent offenses that were never reported or detected are not included. While this is problematic given that sex offenses are considered to be underreported crimes, it is a limitation in most studies of recidivism. Second, arrest data are subject to false positives. If a person is arrested but later cleared, it is not indicated in the data. Lastly, the data only account for arrests that occurred in the state of Virginia. Offenses that were committed in other states are not included.

Measures

Several measures were used in the present study. First, we used whether the individual had been convicted of a sex offense from the ages of 19–33. These were coded as 0 for no and 1 for yes. Second, we used whether the individual had a prior record of public order offenses, property offenses, violent offenses, drug offenses, and other offenses that were not sex offenses. Each of these measures was open-ended, and because of non-normality these measures were recoded as 0 for no and 1 for yes. Third, we used the number of violent crimes since original conviction for a violent, drug, or property crime. The number of offenses was non-normal, so we recoded the measures as 0 for no and 1 for yes. Fourth, we used a measure of gender that was coded as 0 for female and 1 for male. Fifth, we used a measure of race/ethnicity. In the data, there was a preponderance of whites and blacks, so the measure was coded as 0 for black and 1 for white.

Analysis plan

The analysis plan for this study takes place in a series of steps. The first step was a presentation of the descriptive statistics. The descriptive statistics allowed for an inspection of the general trends of sex offenses. The second step was an estimation of semiparametric group-based models using SAS and the Proc Traj (see Nagin 2005 for a review of this technique) macro to arrive at the proper number of trajectory groups of sex offenders by age. The third step was a presentation of the Analysis of Variance that is used to determine the proportion differences across the trajectory groups. The fourth step was a presentation of logistic regression analyses to determine if belonging to the extreme trajectories was important for recidivism.

RESULTS

Step 1

Table 1 shows, in the first step, that between 2 and 18% of the sample committed sex offenses from age 19 through 33. In addition, 6% of the sample committed a prior public order offense before their sex offense(s). In the sample, 28% committed a property offense before their sex

offense(s). Twenty-three percent of the sample committed a violent offense before their sex offense(s). Fifteen percent of the sample committed a drug offense before their sex offense(s). Fourteen percent committed some other type of offense before their sex offense(s). After their sex offense(s), 5% committed a public order offense, 19% committed a property offense, 26% committed a violent offense, and 10% committed a drug offense. The sample consisted of 95% males, and 52% whites.

Table 1. Descriptive statistics.

Measure	Mean (%)	Minimum (%)	Maximum (%)
Sex offense (age 19)	2	0	100
Sex offense (age 20)	2	0	100
Sex offense (age 21)	2	0	100
Sex offense (age 22)	2	0	100
Sex offense (age 23)	2	0	100
Sex offense (age 24)	5	0	100
Sex offense (age 25)	5	0	100
Sex offense (age 26)	9	0	100
Sex offense (age 27)	14	0	100
Sex offense (age 28)	16	0	100
Sex offense (age 29)	17	0	100
Sex offense (age 30)	18	0	100
Sex offense (age 31)	14	0	100
Sex offense (age 32)	7	0	100
Sex offense (age 33)	3	0	100
Prior public order offense	6	0	100
Prior property offense	28	0	100
Prior violent offense	23	0	100
Prior drug offense	15	0	100
Prior other offense	14	0	100
Recidivism public order offense	5	0	100
Recidivism property offense	19	0	100
Recidivism violent offense	26	0	100
Recidivism drug offense	10	0	100
Gender: male	95	0	100
Race: white	52	0	100

Step 2

We explored the data for sex offender trajectories. The final trajectories were determined using two pieces of information. First, we used the Bayesian Information Criterion (BIC). Nagin (2005) argued that the BIC must be maximized to determine the optimal number and shape of the trajectories. Second, we used the posterior probabilities. The mean posterior probabilities must be above 0.70 to indicate that the placement of the individuals into trajectory groups has been reliably performed (Nagin 2005). Keeping these criteria in mind, we estimated numerous Logit trajectory models, and we found that cubic models provided the best fit for the number of sex offenses based on the BIC and the posterior probabilities.

Figure 1 graphically displays the trajectories of the number of sex offenses by age. Group 1 (G1) trajectory group represents 17.98% of the sample, which begins with no sex offenses at age 19 and has nearly 0.50 by age 33. This group shows that few of its individuals had committed a sex offense until later in life. Group 2 (G2) trajectory group represents 14.35% of the sample, which begins with no sex offenses at age 19, but the number of sex offenses seems to spike from ages 23 to 28; then, the trajectory declines to no sex offenses. This is a group that likely includes one-time sex offenders. Group 3 (G3) trajectory group represents 67.67% of the sample, which has no sex offenses at age 19, but the number of sex offenses rises and remains consistent from ages 23 to 33. This trajectory suggests that over two-thirds of the sex offenders are consistent in their offending. These results are consistent with Tewksbury and Jennings (2010).
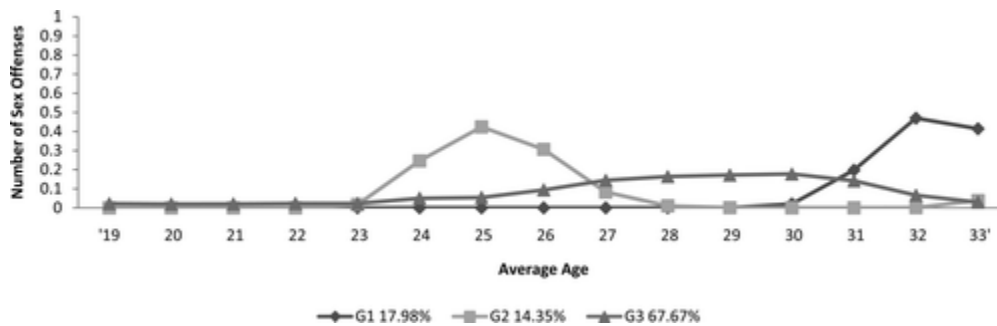

Figure 1. Trajectory analysis of the number of sex offenses across age.

Step 3

Table 2 presents the ANOVA for mean differences in proportions across the trajectory groups. The results indicate that only three measures had mean proportion differences across the trajectory groups. For recidivism for property offenses, the trajectory groups G2 and G3 had higher proportions than trajectory group G1. Similar results were present for recidivism for violent and drug offenses. These results indicated that individuals following a more consistent sex offending trajectory are more likely to commit other crimes as well. This is some indication that sex offenders do not specialize and the sex offense may be a precursor to other criminal activity.

Table 2. One-way ANOVA table for proportion differences.

Measure	G1 mean	G2 mean	G3 mean	f-Statistic
Prior public order offense	0.05	0.05	0.06	0.30
Prior property offense	0.25	0.27	0.28	0.52
Prior violent offense	0.19	0.22	0.23	0.57
Prior drug offense	0.13	0.14	0.15	0.28
Prior other offense	0.12	0.14	0.15	0.86
Recidivism public order offense	0.04	0.05	0.06	0.74
Recidivism property offense	0.11	0.19	0.19	4.27*
Recidivism violent offense	0.13	0.25	0.26	8.58**
Recidivism drug offense	0.03	0.10	0.11	5.13**
Gender	0.95	0.96	0.96	0.06
Race	0.52	0.54	0.56	0.74

*$p < 0.05$, **$p < 0.001$.

Step 4

Table 3 presents the logistic regression analysis for recidivism for violent, property, and drug offenses. Individuals that were following sex offender trajectory group G3 were 2.34 times more likely than individuals following sex offender trajectory group G1 to have committed a violent offense. This result is robust because it remains while controlling for prior offending. Specifically, those that had a prior violent offense were 1.56 times more likely to recidivate with a violent crime than those that did not. The odds ratio for the trajectory group membership is larger than that of the prior violent crime suggesting that being a frequent sex offender recidivist is more likely to produce recidivism for violence. Finally, whites were less likely than blacks to recidivate for violent offenses.

Table 3. Logistic regression analyses for recidivism for other crimes.[a]

Measure	Violent			Property			Drug		
	b	SE	Exp(b)	b	SE	Exp(b)	b	SE	Exp(b)
Gender	0.12	0.22	1.13	−0.17	0.22	0.85	0.21	0.34	1.24
Race	−0.99*	0.09	0.37	−0.30*	0.10	0.74	−0.99*	0.14	0.37
Trajectory group G1 versus G3	0.85**	0.22	2.34	0.66***	0.24	1.94	1.22*	0.41	3.38
Prior public order offense	−0.21	0.18	0.81	−0.21	0.20	0.81	−0.25	0.25	0.78
Prior property offense	0.12	0.10	1.13	0.60***	0.11	1.83	0.15	0.14	1.16
Prior violent offense	0.44**	0.10	1.56	0.02	0.12	1.02	0.23	0.15	1.25
Prior drug offense	0.03	0.12	1.03	0.14	0.13	1.44	0.71*	0.15	2.03
Prior other offense	0.13	0.12	1.13	0.25	0.13	1.28	0.22	0.16	1.25
Chi-square	218.55**	82.41**	146.17**						
−2 Log likelihood	3350.85	2940.66	1888.84						
Cox and Snell R^2	0.07	0.03	0.05						
Nagelkerke R^2	0.10	0.04	0.10						

Note: [a]Similar analyses were performed using Poisson regression with substantively similar results.
*$p < 0.05$, **$p < 0.001$.

Table 3 shows the correlates of recidivism for property offenses. Individuals following sex offender trajectory group G3 were 1.96 times more likely than individuals following sex offender trajectory group G1 to recidivate for a property crime. The odds ratio is larger than the 1.83 for prior property crime. Finally, whites were less likely than blacks to recidivate for property crimes.

Table 3 also indicates the three correlates that were significant for predicting the recidivism for drug offenses. First, individuals following the sex offender trajectory group G3 were 3.38 times more likely to recidivate for a drug offense than those following the sex offender trajectory group G1. This odds ratio is larger than those that had a prior drug offense (Exp(b) = 2.03). Finally, whites were less likely than blacks to recidivate for a drug offense.

DISCUSSION

The purpose of the present study was to fill the gap in the research by exploring the recidivism of sex offenders. The results indicated that group G3, which contained the majority of registered sex offenders in the sample, were more likely to recidivate in multiple ways compared to the other two trajectory groups (G1 and G2). In other words, registered sex offenders who consistently committed sex crimes ('career criminals') throughout the age span of 23–33 were more likely to commit other forms of criminal behavior as well. Offenders in the group G1 were those who had limited involvement in sex offending and also demonstrated limited recidivism (if any) for any type of criminal activity. Offenders in the group G2 were those who had sporadic sex offending during the ages of 23–33, but we still do not consider them to fit into the career criminal category. Furthermore, they were less likely to have recidivated in other forms compared to those extremely active offenders in group G3.

The finding that high-rate sex offenders were also the most likely to commit other violent, property and drug crimes suggests that high-rate sex offenders are not specialists in their offending. Instead, highly active sex offenders were also actively committing many other types of crimes in addition to sex offenses. This finding is in accordance with Gottfredson and Hirschi's (1990) generalists perspective, suggesting that these offenders' criminal involvement does not fit a pattern. This is also consistent with some prior research that has examined sex offenders' criminal involvement and found that sex offenders are versatile in their offending (e.g., Weinrott and Saylor 1991, Pritchard and Bagley 2000, Soothill et al. 2000); but inconsistent with other prior research, which has indicated that sex offenders actually follow specific patterns of offending (e.g., Abel et al. 1981, Farrington et al. 1998). If these high-rate sex offenders are generalists and have a high propensity to commit all types of crimes, rehabilitation efforts specifically focused on sex offending (e.g., chemical castration) might not be the best options, as they will only address part of the problem.

The findings of this research also support Sample and Bray's (2006) argument that sex offender policies do not need to focus on all sex offenders. Instead, policies aimed at reducing sex offender recidivism should focus on the sex offending groups who are at a greater risk of reoffending. In this particular study, the G3 group would fall under this category, as they had the highest likelihood of recidivating for several forms of criminal behavior, and were the most active

offenders. By focusing on groups who have this high risk of recidivating, our criminal justice system can commit resources to focus on a smaller group of offenders. In turn, this will most likely enhance their abilities to supervise these offenders and will produce the largest reductions in offending.

Tewksbury and Jennings (2010) further argue that including all sex offenders on community notification lists can unnecessarily cause increased fear in the community. Limiting the list to fewer offenders (i.e., those who are at high risk of committing more crimes rather than minor crimes considered sex offenses) can make the list more manageable in terms of costs and monitoring. In turn, we may see an increased deterrence of criminal behavior by sex offenders due to the registry and the resources dedicated to punishment and prevention. With more available resources, additional options aimed at reducing recidivism can also be explored. It may also be the case that for these particularly active sex offenders, registration is not the most effective solution and that policies for these sex offenders should take a different route for punishment and treatment. According to Skelton and Vess (2008), treatment and supervision resources should be directed at seasoned offenders who are more active and more likely to recidivate, compared to younger counterparts who have isolated incidences of offending. In other words, it would benefit the criminal justice system to focus public policy on those who recidivate more, as they are more of a threat to the public.

Future research should continue to examine and identify distinctive groups of sex offenders to determine which offenders have the highest probability of reoffending. The current study is limited to one state. Additional research should be conducted in other areas. The data were also limited in the variables available. Other variables such as treatment history, diagnosed mental health programs, and support systems could affect rates of recidivism. Future research should include examinations of these factors. Further, future research should investigate the effect of mental health status on sex offender recidivism. Antisocial personality is a significant predictor of sex offender recidivism (Skelton and Vess 2008). While this variable was not examined in this study, this could be a potential significant predictor of the behavior of our group G3, as they were the most active of all the groups and the most likely to recidivate.

REFERENCES

Abel, G.G., et al., 1981. Identifying dangerous child molesters. In: R.B. Stuart, ed. Violent behavior. New York: Bruner/Mazel, 116–137.

Doren, D., 2006. What do we know about the effect of aging on recidivism risk for sexual offenders? Sexual Abuse: A Journal of Research and Treatment, 18, 137–157.

Farrington, D.P., Snyder, H.S., and Finnegan, T.A., 1988. Specialization in juvenile court careers. Criminology, 26, 461–487.

Furby, L., Weinrott, M.R., and Blackshaw, L., 1989. Sexual offender recidivism: a review. Psychological Bulletin, 105, 3–30.

Gottfredson, M.R. and Hirschi, T., 1990. A general theory of crime. Stanford, CA: Stanford University Press.

Hanson, R.K., 2002. Recidivism and age: follow-up data on 4,673 sexual offenders. Journal of Interpersonal Violence, 17, 1046–1062.

Hanson, R.K., 2006. Does Static-99 predict recidivism among older sexual offenders? Sexual Abuse: A Journal of Research and Treatment, 18, 343–355.

Hanson, R.K., Bourgon, G., Helmus, L., and Hodgson, S., 2009. A meta-analysis of the effectiveness of treatment for sexual offenders: Risk, need, and responsivity. Ottawa, Canada: Her Majesty the Queen in Right of Canada.

Hanson, R.K. and Bussie`re, M.T., 1998. Predicting relapse: a meta-analysis of sexual offender recidivism studies. Journal of Consulting and Clinical Psychology, 66, 348–362.

Hanson, R.K. and Morton-Bourgon, K.E., 2005. The characteristics of persistent sexual offenders: a meta-analysis of recidivism studies. Journal of Consulting and Clinical Psychology, 73, 1154–1163.

Knight, R.A. and Thornton, D., 2007. Evaluating and improving risk assessment schemes for sexual recidivism: A long-term follow-up of convicted sexual offenders (Final report, NCJ 217618) [online]. Available from: http://nij.ncjrs.gov/publications [Accessed 1 October 2011].

Marques, J.K., et al., 1994. Effects of cognitive-behavioral treatment on sex offender recidivism: preliminary results of a longitudinal study. Criminal Justice and Behavior, 21 (1), 28–54.

Nagin, D., 2005. Group-based modeling of development. Cambridge, MA: Harvard University Press.

Prentky, R.A. and Lee, A.F.S., 2007. Effect of age-at-release on long term sexual re-offence rates in civilly committed sexual offenders. Sexual Abuse: A Journal of Research and Treatment, 119, 43–59.

Pritchard, C. and Bagley, C., 2000. Multi-criminal and violent groups among child sex offenders: a heuristic typology in a 2-year cohort of 374 men in two English counties. Child Abuse and Neglect, 24, 579–586.

Quinsey, V.L., Khanna, A., and Malcolm, P.B., 1998. A retrospective evaluation of the regional centre sex offender treatment program. Journal of Interpersonal Violence, 13, 621–644.
Quinsey, V.L., Rice, M.E., and Harris, G.T., 1995. Actuarial prediction of sexual recidivism. Journal of Interpersonal Violence, 10, 85–105.

Romero, J. and Williams, L., 1983. Group psychotherapy and intensive probation supervision with sex offenders: a comparative study. Federal Probation, 47, 36–42.

Sample, L.L. and Bray, T.M., 2003. Are sex offenders dangerous? Criminology and Public Policy, 3, 59–82.

Sample, L.L. and Bray, T.M., 2006. Are sex offenders different? An examination of rearrest patterns. Criminal Justice Policy Review, 17, 83–102.

Skelton, A. and Vess, J., 2008. Risk of sexual recidivism as a function of age and actuarial risk. Journal of Sexual Aggression, 14, 199–209.

Soothill, K., et al., 2000. Sex offenders: specialists, generalists – or both? A 32-year criminological study. British Journal of Criminology, 40, 56–67.

Stevens, A.P. (2001). Arresting crime: Expanding the scope of DNA databases in America. Texas Law Review, 79, 921–961.

Tewksbury, R. and Jennings, W.G., 2010. Assessing the impact of sex offender registration and community notification on sex-offending trajectories. Criminal Justice and Behavior, 37, 570–582.

Thornton, D., 2006. Age and sexual recidivism: a variable connection. Sexual Abuse: A Journal of Research and Treatment, 18, 123–135.

Weinrott, M.R. and Saylor, M., 1991. Self-report crimes committed by sex offenders. Journal of Interpersonal Violence, 6, 286–300.