



ELSEVIER

Available online at www.sciencedirect.com

SCIENCE @ DIRECT®

International Journal of Law and Psychiatry 28 (2005) 405–417

INTERNATIONAL JOURNAL OF
**LAW AND
PSYCHIATRY**

On intelligence and crime: A comparison of incarcerated sex offenders and serious non-sexual violent criminals

Jean-Pierre Guay*, Marc Ouimet, Jean Proulx

*École de criminologie, Centre International de Criminologie Comparée-Université de Montréal and
Institut Philippe-Pinel de Montréal, Montréal, Canada*

Received 13 January 2003; received in revised form 30 January 2004; accepted 5 March 2004

Abstract

The impact of low IQ on crime has been a focus of debate for several decades now. Although sociologists have virtually removed it from the list of possible factors influencing crime, the impact of IQ on crime continues to generate a significant amount of scientific research and a substantial number of publications. The purpose of this study is to assess intellectual levels and to compare two groups of incarcerated criminals. Using MANCOVA and ANCOVA procedures, 261 sex offenders and 150 non-sexual violent criminals were compared on IQ subscales. The results show significant differences on vocabulary, comprehension, arithmetic, mental math computations, object assembly, letter–number sequencing, and perception subscales, as well as on performance IQ and total IQ. The impacts of penal filtering and sample composition are hypothesized to explain differences between the two subgroups. Theoretical and practical implications are discussed.

© 2005 Elsevier Inc. All rights reserved.

Keywords: Sex offenders; Intelligence; Crime; Offense planning

1. Intelligence and crime

Over the last few decades, much evidence has suggested that intellectual functioning is associated with crime (Hirschi & Hindelang, 1977; Wilson & Herrnstein, 1985). While many researchers consider sociological factors, such as ethnicity or poverty, to be largely responsible for crime, others

* Corresponding author. School of Criminology, University of Montréal, C.P. 6128, Succ. Centre-ville, Montréal, Québec, Canada H3C 3J7. Tel.: +1 514 343 6111x1376.

E-mail address: Jean-Pierre.Guay@Umontreal.ca (J.-P. Guay).

have attempted to demonstrate the importance of intellectual functioning in the understanding of criminal behavior. There have been two main explanations of the role of intellectual performance in crime. First, crime and criminality have been said to be indirectly influenced by a low IQ associated with poor school performance, job performance, and adaptation and social integration in general (Herrnstein & Murray, 1994; Magdol, Moffitt, Caspi, & Silva, 1998; Ward & Tittle, 1994). A second common explanation of the intelligence–crime relationship is what could be called the direct hypothesis, according to which low-IQ individuals are less likely to anticipate the consequences of their actions and to understand suffering in others (Cusson, 1998). Intelligence may therefore be hypothesized to influence the development of the criminal career, on the one hand, and the way crimes are committed, on the other. Thus, studies of the intelligence–crime relationship have mainly focused on two specific areas: a) assessment of the negative impact of intellectual functioning on the seriousness of the criminal career, and b) assessment of the influence of low IQ on modus operandi variables such as the planning and seriousness of offenses.

In an attempt to understand the intelligence–crime relationship, many researchers have addressed the question of the IQ–crime relationship by studying the criminal career (Moffitt, Caspi, Silva, & Stouthamer-Loeber, 1995; Moffitt, Gabrielli, Mednick, & Schulsinger, 1981; Spellacy, 1978). To do so, researchers have compared delinquents with non-delinquents and chronic offenders with one-time offenders on IQ scales. For example, Gibson and West (1970) compared 8- to 9-year-old delinquents with non-delinquents on intelligence test scores. Even after controlling for socio-economic status (SES), the subjects in the delinquent groups scored lower on verbal and non-verbal subtests. These results were later confirmed by Wolfgang, Figlio, and Sellin (1972), who used a cohort of 9945 subjects tested on IQ scores. The differences found varied from 5 to 10 points, with non-delinquent subgroups scoring higher. Yeudall, Fromm-Auch, and Davies (1982) also found significant differences between delinquents and non-delinquents. The differences ranged from 18.9 points on non-verbal scores to 21.8 points on verbal scores.

The differences found between delinquents and non-delinquents are generally considered to be of approximately 8 points, or half a standard deviation. Nevertheless, Moffitt (1990) suggested that results from aggregated samples showing differences between delinquents and non-delinquents might in fact be hiding larger differences (namely, between serious delinquents and non-delinquents). More sophisticated designs, involving better criminal subtype classifications, were therefore said to be required to effectively assess the IQ–crime relationship.

Using a sample of 9945 subjects, Wolfgang et al. (1972) compared one-time offenders with chronic offenders. Even after controlling for SES and race, differences of 8.1 points for Caucasians and 10.6 points for blacks were observed between the two groups, with one-time offenders obtaining higher scores than chronic offenders. Using a sample of 536 boys and girls, Moffitt (1990) found similar results. While differences of approximately 8 points could be observed between delinquents and non-delinquents, the differences rose to 17 points between non-delinquents and chronic delinquents. Similar results were more recently observed by Kratzer and Hodgins (1999), using a cohort of 13,852 subjects. Their results showed that among four groups of delinquents, *stable early starters* were those with the lowest IQ scores compared with other groups of delinquents. Other similar results concerning the inverse relationship between intellectual level and seriousness of the criminal career have been reported elsewhere in the literature (Cymbalisky, Schuck, & Dubeck, 1975; Gabrielli & Mednick, 1980; Lynam, Moffitt, & Stouthamer-Loeber, 1993; Moffitt et al., 1981).

In sum, these results tend to confirm the idea that non-delinquents perform better on IQ tests than delinquents. Moreover, chronic delinquents obtain lower scores than one-time offenders. Considering that persistence of delinquent behavior is related to aggravation (LeBlanc & Fréchette, 1989), many researchers have attempted to study the relationship between intellectual level and seriousness of the offense.

2. Intelligence and violent crimes

In an attempt to understand the relationship between IQ and delinquency, Spellacy (1977, 1978) studied Wechsler IQ scores for incarcerated offenders. Non-violent subjects, comparable in terms of age, race, and laterality, were compared with violent offenders. Violent offenders showed lower scores, with differences ranging from 10.3 points to 13.8 points, compared with non-violent offenders. Similar results were observed by Holland and his colleagues (Holland, Beckett, & Levi, 1981; Holland & Holt, 1975). While for Spellacy (1977, 1978) such results reflect organic problems, Holland et al. emphasize the difficulties encountered by low-IQ offenders. An association between intellectual level and violence has also been observed longitudinally by Crocker and Hodgins (1997), using a cohort of 15,117 subjects.

Research has also shown that high IQ scores serve as a protection against criminogenic environmental influences (Kandel et al., 1988). However, considering the great heterogeneity of criminals and the great heterogeneity of crimes, few researchers have attempted to study the relationship between IQ and crime by separating criminals into subtypes. Among the criminals considered to show the most differences from all other criminals, sex offenders make up a special subgroup, along with white-collar criminals (Hanson, Scott, & Steffy, 1995). In fact, sex offenders are often considered to be different types of criminals, at least in terms of their endorsement of “rape myths” (Burt, 1980) and in various criminal career aspects (Boutin, 1999; Proulx, Ouimet, Boutin, & Lussier, 2001). According to Hanson et al. (1995), child molesters are different from non-sexual criminals not only in terms of background variables (e.g., marital status and education) but also with respect to type of recidivism.

As mentioned earlier, studies on the IQ–crime relationship have always been approached with caution by the scientific community. Considering the strong sociological roots of criminology, hypotheses examining the possibility that criminal behavior may somehow be related to stable factors have led to numerous disconfirmation studies. The criticisms directed toward an IQ and crime hypothesis have focused on three main aspects. First, some scholars have argued that more intelligent criminals are less likely to be arrested (Moffitt & Silva, 1988; Murchison, 1926; Stark, 1975). However, although the differential detection hypothesis was a promising explanation of differences between criminals and non-criminals, cohort studies (Moffitt & Silva, 1988) using self-reported delinquency have failed to confirm this. Second, one of the most common alternative explanations of the differences between delinquents and non-delinquents is the spurious relationship, or the effect of a third variable (Lynam et al., 1993). Most of the differences were said to be attributable to SES or race. But again, studies statistically controlling for either race or socio-economic status (Hodges & Plow, 1990; Lynam et al., 1993; Ward & Tittle, 1994) have failed to confirm the spuriousness of the relationship. Third, some researchers have argued that the poor scores obtained by delinquents were in fact a matter of motivation. Those supporting such a hypothesis suggested that young delinquents

were much less motivated by academic exercises (such as IQ tests) than non-delinquents, and it was this lack of motivation that could at least partly explain the differences in IQ scores. In order to test that hypothesis, [Lynam et al. \(1993\)](#) coded subjects according to test motivation. The results showed no significant decreases in IQ differences between delinquents and non-delinquents after controlling for the motivation of the subjects.

3. Intelligence and crime in sex offenders

Among studies of intellectual performance, a wide range of studies have discussed the impact of intellectual functioning on either the criminal career or the modus operandi of sex offenders. Only a few studies have attempted to empirically investigate the question ([Okami & Goldberg, 1992](#)). Much of the research on sex offenders has addressed the question of the specificity of sex offenders by comparing sex offenders with traditional criminals. Most studies did not find significant differences between the two groups ([Langevin, Paitich, & Russon, 1985](#); [Tarter, Hegedus, Alterman, & Katz-Garris, 1983](#); [Vera, Barnard, & Holzer, 1979](#)). Other studies have compared certain subtypes of sex offenders with traditional criminals. While some did find significant differences between certain subtypes of sex offenders and generic non-sexual criminals ([Hucker et al., 1988](#); [Karacan et al., 1974](#); [Langevin, Wortzman, Wright, & Handy, 1989](#); [Ruff, Templar, & Ayers, 1976](#)), others failed to observe such differences ([Ford & Linney, 1995](#)).

The results of studies on sex offenders are not yet conclusive, for several reasons. First, from a methodological standpoint, measures of intellectual levels differ from one research setting to another. An overview of such studies indicates that not all studies used validated psychometric intelligence tests. The use of qualitative evaluations of subjects' intellectual functioning may have jeopardized the validity of some studies. Second, important differences exist between the samples used to study the intelligence–crime relationship. The failure to establish important distinctions within sex offender subtypes has typically resulted in the use of heterogeneous types of samples, composed of subjects awaiting trial, incarcerated offenders, individuals subjected to alternative penalties such as fines, probation, or community work, subjects from psychiatric facilities, hands-on, and hands-off offenders, etc. This variety may in large part explain the apparently contradictory results. Confusion and misleading conclusions may arise from such methodological flaws. Many methodological problems plague the search for detailed, more specific data. Therefore, the aim of our study was to compare hands-on sex offenders with non-sexual violent (NSV) offenders.

4. Method

4.1. Subjects

The subjects in this study consisted of a sample of 411 offenders incarcerated at the Regional Reception Centre (RRC), a maximum-security facility of Correctional Services of Canada. The sample was comprised of offenders from the Province of Québec sentenced to two or more years of incarceration, who are all channeled through the RRC. The subjects' treatment needs and correctional risk levels were evaluated during a 4- to 6-week procedure. Of the 411 offenders, 261 were sex

offenders and 150 were non-sexual violent (NSV) offenders. Ninety-four percent of the total number of sex offenders transiting through the RRC between 1995 and 1999 agreed to take part in the study. For the 150 randomly selected NSV offenders, only IQ test results were collected from the files. A criminal was considered a sex offender when one of his offenses involved sexual contact with the victim. The offenders considered were all *hands-on* offenders, which means that they all had physical contact with their victims. *Hands-off* offenders such as voyeurs, exhibitionists, and other paraphiliacs were excluded, unless they had committed a sexual aggression. The non-sexual violent offenders in the sample had mainly committed homicide, armed robbery, and assault. At the time of evaluation, the mean age of the sex offenders (36.2 years, S.D.=10.1; range of 18 to 71) was significantly higher ($F=40.9$, $p\leq 0.001$) than the mean age of the NSV criminals (30.1 years, S.D.=7.3; range of 18 to 71). The sex offenders had a lower level of education ($t=-4.2$, $p\leq 0.001$) than the NSV offenders (8.2 vs. 9.1 years). Overall, 36.4% of the subjects were married or living common-law, and 63.6% were single or widowed. None of the subjects was severely mentally disordered (i.e. diagnosed with a psychotic or mood disorder).

4.2. Procedure

The data collection covered a variety of dimensions – namely, personal characteristics of the offender (family, experiences of childhood victimization, juvenile delinquency, adult delinquency), characteristics of the criminal event that led to conviction (pre-crime situation and the crime scenario), and characteristics of the crime and the victim – and included a number of psychological tests, including IQ tests. Those computerized IQ test results were used in this study.

4.3. Measures

This study deliberately used a limited number of variables, and used a sample of incarcerated sex offenders without distinction as to subtypes. Considering the great heterogeneity of sex offenders (Knight & Prentky, 1990; Knight, Rosenberg, & Schneider, 1985; Proulx, Perreault, & Ouimet, 1999), the use of a validated and reliable taxonomic system (i.e. Knight & Prentky, 1990) would have been preferable. Unfortunately, it was impossible to use a typology due to the small number of subjects for which all the information was available for coding. The strategy of including all incarcerated sex offenders allowed for the inclusion of other subgroups of sex offenders, such as incest and pseudo-incest offenders and marital rapists, thus considerably expanding the sex offender population coverage.

4.4. IQ

We used a validated computerized assessment of intelligence, the *Tests d'Aptitudes Informatisés* (TAI) (Pépin & Loranger, 1993, 1997; Portugais, Daudelin, Loranger, & Pépin, 1995). The TAI includes a total of eleven scales measuring various aspects of intelligence: vocabulary, verbal logical reasoning, knowledge, comprehension, arithmetic, mental math computations, object assembly, letter–number sequencing, spatial relationships, perception, and working memory. The TAI is a test similar to Wechsler family tests assessing important dimensions of intelligence, and it uses similar total (TIQ), verbal (VIQ), and performance (PIQ) indexes.

5. Results

The aim of this study was to compare sex offenders with NSV offenders on IQ results, namely, on all eleven scales, as well as on three composite indexes. To test for significant differences between the eleven intelligence subscales and the independent fixed factor of criminal subtype, a multivariate analysis of covariance (MANCOVA) was performed. In order to control for the possible confounding effects of other relevant variables, covariates were used to statistically control for the subjects' age and highest level of schooling completed. Three additional simple analyses of covariance (ANCOVA) were conducted in order to compare sex offenders with NSV criminals on composite VIQ, PIQ, and TIQ scales. The results are shown in [Table 1](#).

The results of the MANCOVA indicated significant group effects (Hotelling's T -Square=32.144, $F(11,394)=2.83$, $p \leq 0.001$) as well as significant age (Hotelling's T -Square=173.264, $F(11,394)=15.28$, $p \leq 0.0001$) and highest level of schooling completed effects (Hotelling's T -Square=141.512, $F(11,394)=12.47$, $p \leq 0.0001$). Differences between sex offenders and NSV criminals were mainly attributable to the latter's higher scores on the vocabulary subscale ($F=7.77$, $p \leq 0.01$), as well as on the comprehension ($F=5.68$, $p \leq 0.05$), arithmetic ($F=7.92$, $p \leq 0.01$), mental math computations ($F=11.14$, $p \leq 0.001$), object assembly ($F=10.50$, $p \leq 0.001$), letter–number sequencing ($F=4.18$, $p \leq 0.05$), and perception subscales ($F=4.95$, $p \leq 0.05$).

The second part of [Table 1](#) presents results from three separate ANCOVAs conducted with the VIQ, PIQ and TIQ composite indexes. While sex offenders and NSV criminals showed similar low VIQ scores (with means of 82.2 and 86.6, respectively, $F(1,378)=1.64$, n.s.), the ANCOVA results showed significant differences for PIQ ($F(1,378)=5.81$, $p \leq 0.05$) and TIQ scores ($F(1,378)=4.28$, $p \leq 0.05$).

To aid in an understanding of the test results for the two groups, [Fig. 1](#) shows the TIQ distributions. The distribution for sex offenders is seen to be slightly platykurtic with a positive

Table 1
Multivariate analyses of variances

	Sex offenders	NSV offenders	Multivariate (F)	
Vocabulary	15.5	18.7	7.77	**
Verbal logical reasoning	4.6	5.9	0.94	n.s.
Knowledge	16.2	16.9	0.66	n.s.
Comprehension	11.5	13.2	5.68	*
Arithmetic	7.4	9.1	7.92	**
Mental math computations	15.6	18.5	11.14	***
Object assembly	8.6	11.2	10.50	***
Letter–number sequencing	9.1	11.9	4.18	*
Spatial relationships	15.8	17.6	0.09	n.s.
Perception	14.6	16.7	4.95	*
Working memory	13.4	14.9	2.26	n.s.
VIQ	82.2	86.6	1.64	n.s.
PIQ	86.5	93.3	5.81	*
TIQ	82.3	89.1	4.28	*

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; n.s.: non-significant.

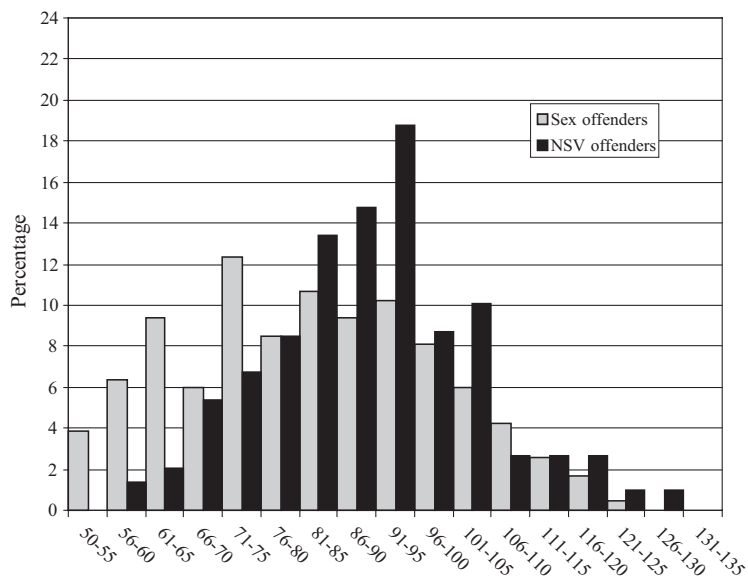


Fig. 1. Global IQ distribution for subsamples of sex offenders and NSV criminals.

asymmetry, while the distribution for NSV criminals is mesokurtic. The sex offenders' distribution tends to show a higher proportion of borderline subjects (65–75), as well as a higher proportion of low-IQ subjects, than is the case with the NSV criminals. In fact, differences between incarcerated sex offenders and NSV criminals are seen not only in the mean scores, but also clearly in the shape of the distributions.

6. Discussion

The results from the current study indicate that sex offenders differ from non-sexual violent criminals in terms of IQ. Differences between sex offenders and NSV criminals are particularly significant on total and performance IQ scores. When compared with NSV criminals, sex offenders showed significantly lower results on performance scales. While research on NSV criminals tends to show mental imbalance (higher performance on non-verbal than on verbal IQ), sex offenders tend to perform poorly on virtually all scales.

In past studies, sample selection problems may have led to the idea that sex offenders were mostly comparable to NSV criminals in terms of their performance on IQ tests. But due to several methodological drawbacks found in these studies, one cannot effectively conclude that there are no differences between NSV criminals and sex offenders. Using a sample of comparable offenders and a validated IQ test, the present data provide support for the idea that incarcerated sex offenders may constitute a different group of subjects from NSV criminals, one that is characterized by limited intellectual performance (Ruff et al., 1976). Considering the differences found in the nature of the distributions, studies not taking into account the lower end of the IQ curve (Hall, 1988) may have blurred the fact that incarcerated sex offenders, when compared with other serious criminals, show higher proportions of intellectually limited subjects (Blanchard et al., 1999).

An examination of score distributions indicates that 35.7% of the sex offenders obtained a score below 75, and 25.1% of the subjects obtained a score below 70. Although some researchers have observed similar results (Williams, 1999), we must bear in mind that according to the rules of the Gaussian curve, 95.45% should be within two standard deviations (Blalock, 1972). Our results show that sex offenders, compared with the normal population, show 10 times more subjects with scores below 70 than would normally be expected. Such a proportion is higher than other results observed with violent recidivists (Bonta, Harris, Zinger, & Carriere, 1996). The fact that there is a larger proportion of such intellectually limited sex offenders than one would expect may in part explain the results found in some of the specific literature on mentally retarded sex offenders (Day, 1994; Gilby, Woolf, & Goldberg, 1989), and the existence of treatment programs for such particular institutionalized populations (Coleman & Haaven, 1998; Demetral, 1994; Haaven, Little, & Petre-Miller, 1990; Lund, 1992; Schilling & Schinke, 1988; Swanson & Garwick, 1990). Unfortunately, all too frequently, research results lead to the idea that sex offenders are no different from other offenders in terms of IQ and that treatment programs should be designed for either “normal” sex offenders or intellectually limited sex offenders. Our results clearly show that most sex offenders tend to perform poorly on IQ tests and would greatly benefit from already developed, specifically-tailored treatment programs that take such limitations into account and do not simply apply the arsenal of cognitive-behavioral techniques that were originally developed for normal-range intellectual performance subjects. Overall, the results presented in the current study induce us to question the use of generic treatment programs for sex offenders, as some of these program modules have generally been developed for non-sexual offenders. Certain treatment programs oriented towards reducing recidivism may focus on setting goals that are difficult to achieve and by doing so, encourage treatment dropout. The relationship between IQ and treatment dropout has been established elsewhere (Lueger & Cadman, 1982), as has the relationship between treatment dropout and recidivism (Marques, Day, Nelson, & West, 1994).

In recent years, there has been a growing public awareness of and increasing alarm about sex crimes, especially those perpetrated on juvenile victims. The mechanisms of penal system filtering may help us to understand the overrepresentation of low-functioning sex offenders in correctional facilities. According to Ouimet (2002), public opinion has recently called for stricter enforcement of sex crime laws and harsher punishment of sex offenders by the courts. Much of the apparent increase in sex offending could be the result of an increase in the reporting and recording of sex crimes, particularly those perpetrated on children. Fig. 2 illustrates such a hypothetical penal filtering process and offers a possible explanation for differences in IQ curve shapes between sex offenders and NSV criminals. It shows that borderline-IQ sex offenders, especially child molesters, tend to “penetrate” deeper into the penal system. A recent trend toward more public support for harsher punishment of sex criminals, especially child molesters, may have skewed the IQ distribution through an increase in the reporting of crimes committed by low-IQ subjects, who in the past had frequently benefited from penal immunity for their benign or non-sexual crimes. In a recent study, Guay, Ouimet, and Proulx (2004) suggested the idea that the sample composition tends to change from the level of police detection, to federal incarceration, to psychiatric treatment. The results of that study put forward the idea that this increased “penetration” of the justice system is associated with an overrepresentation of sex offenders with juvenile victims. In fact, all things being equal, child molesters tend to be 2.2 times more likely than other subgroups to be given a sentence of two or more years of incarceration. Such a tendency towards overrepresentation of child molesters is exacerbated when treatment is considered in a special facility, with child molesters having 1.3 more chances of being selected for treatment in a psychiatric facility (Guay et al., 2004). Therefore,

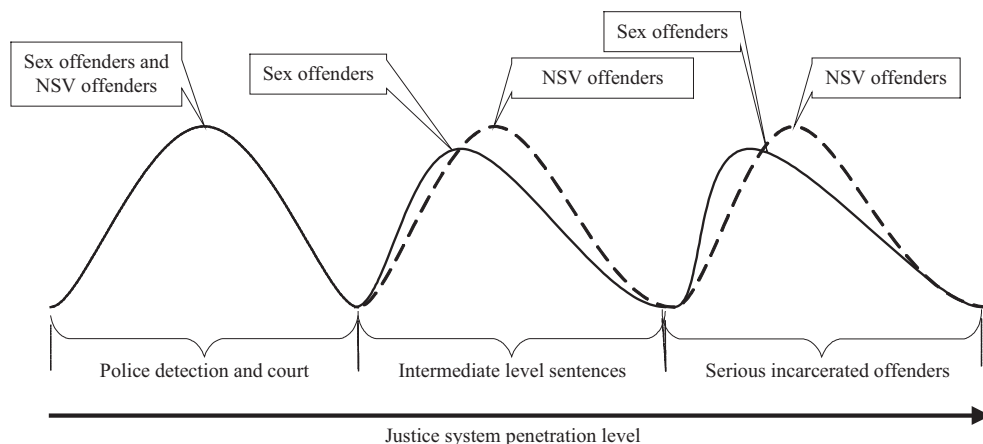


Fig. 2. A hypothetical model of the relation between intelligence distributions and justice system penetration.

considering that penal filtering tends to judge perpetrators of sexual crimes on minor victims more severely, no matter what the intellectual level of the perpetrator is, it is not surprising to find larger proportions of these subjects in a sample of incarcerated sex offenders.

One explanation of the results found in this study might be related to the very specific nature of sex crimes. Research on sex offender taxonomy strongly suggests a great heterogeneity of motivations (Groth & Birnbaum, 1979; Groth, Burgess, & Holmstrom, 1977; Knight & Prentky, 1990), criminal careers (Boutin, 1999), and choices of victims (Guay, Proulx, Cusson, & Ouimet, 2001) among perpetrators of those crimes. Although there is considerable heterogeneity among sex offenders, one finds a limited number of prototypic stable subtypes (Guay et al., 2001; Knight & Prentky, 1990; Knight et al., 1985; McKibben, 1993). In fact, certain sex offender subtypes may be seen as variations of NSV criminals whose deviant behaviors have included sexual coercion. For them, sexual offending is, among other things, another manifestation of their low impulse control. Other offenders have very specialized criminal careers (Boutin, 1999; Proulx et al., 2001), sex being the central focus of their crimes. Recently, a number of researchers (Guay, 2001; Knight, 2001) have submitted the idea, using recent taxometric methods (Meehl, 1973; Meehl & Yonce, 1996; Ruscio & Ruscio, 2004), that a subgroup of highly sexualized subjects may form a hypersexual taxon. These subjects, mainly characterized by sexual preoccupation, sexual compulsivity, an active fantasy life and the highest level of offense planning, have also been shown to have the highest IQ scores of all sex offenders (Guay, 2001).

With regard to the hypersexual taxon hypothesis, Fig. 3 presents an alternative interpretation of the skewed platykurtic distribution for sex offenders presented in Fig. 1. This figure may possibly portray the merged distributions of not two but three different types of offenders, namely, non-taxonic sex offenders (or complement subgroups not characterized by hypertrophy of their sex drive), a hypersexual taxon, and NSV criminals. The hypothesis of a merged distribution of two qualitatively different subgroups of sex offenders could explain the levelling off of the curve as depicted in Fig. 1. On the one hand, low-IQ sex offenders could be conceived of as an extension of the left-end curve of NSV criminals, characterized by high levels of impulsivity and low self-control, for whom sexual crimes are only a small proportion of their polymorphous criminality. On the other hand, a small proportion of sex offenders exhibiting a normal-level IQ would for the most part be composed of hypersexual taxon subjects. The idea of a hypersexual taxon, as described here, could also be

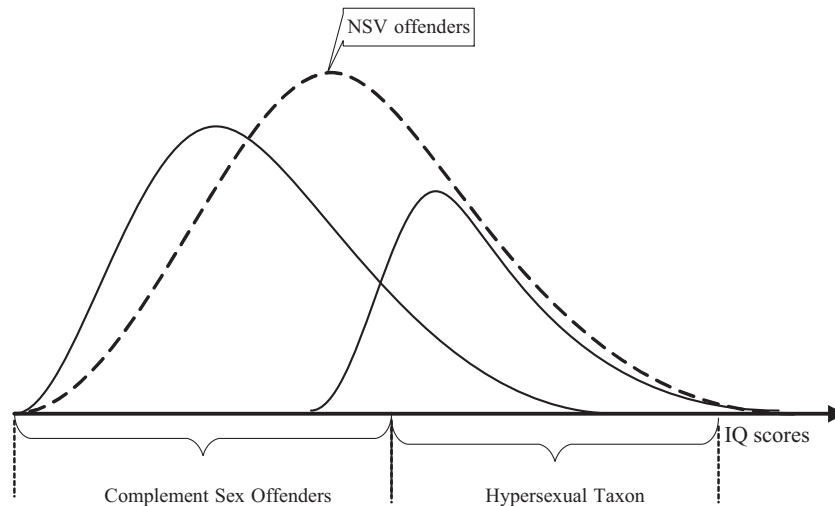


Fig. 3. Complement sex offenders and NSV criminal sample in relation to a hypothetical hypersexual taxon.

consistent with the hypothesis of sexually motivated criminals' cognitive functioning resembling that of paraphiliacs, since their behavioral manifestations of low self-control are mostly limited to deviant and non-deviant sexual activities.

7. Limitations of the study

The current study is clearly not without its limitations. First, while the sample chosen was adequate to allow us to compare NSV criminals with sex offenders, it was not representative of all sexual criminals. The sex offenders and NSV criminals were selected from a population of serious offenders sentenced to two or more years of incarceration. The two main factors affecting decision making throughout the criminal justice system (from the arrest decision to the release decision) are the seriousness of the crime committed and the prior criminal record of the offender (Gottfredson & Gottfredson, 1988). A larger sample of offenders, including subjects incarcerated for less than 2 years (i.e. a sample of provincial inmates or of individuals given alternative penalties such as fines, probation, or community work), could provide important additional information on the hypothesis of the differential processing of cases through the judicial system. Also, the choice of considering the entire sample as a homogeneous subset was made for practical reasons. However, the use of an empirically validated taxonomic system (Knight & Prentky, 1990) or even the use of a descriptive classification based on simple criteria (e.g., age and sex of the victim, relationship between the offender and his victim) might have provided us with a clearer view of the intellectual deficits of sex offenders.

Acknowledgements

This research was supported by a doctoral grant provided by the Social Sciences and Humanities Research Council of Canada (SSHRC). The authors wish to thank Serge Larivée for his substantive

and stylistic editing. Special thanks are also due to Michel St-Yves and Tony Brien for their meticulous data collection.

References

- Blalock, H. M. (1972). *Social statistics*. New York: McGraw-Hill.
- Blanchard, R., Watson, M. S., Choy, A., Dickey, R., Klassen, P., Kuban, M., et al. (1999). Pedophiles: Mental retardation, maternal age, and sexual orientation. *Archives of Sexual Behavior*, 28, 111–127.
- Bonta, J., Harris, A., Zinger, I., & Carriere, D. (1996). *The crown files research project: A study of dangerous offenders*. Ottawa: Solliciteur Général du Canada.
- Boutin, S. (1999). *La carrière criminelle des agresseurs sexuels*. Unpublished master's thesis, Université de Montréal: Montréal, Québec, Canada.
- Burt, M. (1980). Cultural myths and supports for rape. *Journal of Personality and Social Psychology*, 38, 217–230.
- Coleman, E., & Haaven, J. (1998). Adult intellectually disabled sexual offenders: Program considerations. In W. L. Marshall, Y. M. Fernandez, S. M. Hudson, & T. Ward (Eds.), *Sourcebook of treatment programs for sexual offenders* (pp. 273–285). New York: Plenum Press.
- Crocker, A. G., & Hodgins, S. (1997). The criminality of noninstitutionalized mentally retarded persons: Evidence from a birth cohort followed to age 30. *Criminal Justice and Behavior*, 24, 432–454.
- Cusson, M. (1998). *Criminologie actuelle*. Paris: Presses Universitaires de France.
- Cymbalisty, B. Y., Schuck, S. Z., & Dubeck, J. A. (1975). Achievement level, institutional adjustment and recidivism among juvenile delinquents. *Journal of Community Psychology*, 3, 289–294.
- Day, K. (1994). Male mentally handicapped sex offenders. *British Journal of Psychiatry*, 165, 630–639.
- Demetral, D. G. (1994). Diagrammatic assessment of ecological integration of sex offenders with mental retardation in community residential facilities. *Mental Retardation*, 32, 141–145.
- Ford, M. E., & Linney, J. A. (1995). Comparative analysis of juvenile sexual offenders, violent nonsexual offenders, and status offenders. *Journal of Interpersonal Violence*, 10, 56–70.
- Gabrielli, W. F., & Mednick, S. A. (1980). Sinistrality and delinquency. *Journal of Abnormal Psychology*, 89, 654–661.
- Gibson, H. B., & West, D. J. (1970). Social and intellectual handicaps as precursors of early delinquency. *British Journal of Criminology*, 10, 21–32.
- Gilby, R., Woolf, L., & Goldberg, B. (1989). Mentally retarded adolescent sex offenders. A survey and pilot study. *Canadian Journal of Psychiatry*, 34, 542–548.
- Gottfredson, M., & Gottfredson, D. M. (1988). *Decision making in criminal justice: Toward the rational exercise of discretion*. New York: Plenum Press.
- Groth, N. A., & Birnbaum, H. J. (1979). *Men who rape: The psychology of the offender*. New York: Plenum Press.
- Groth, N. A., Burgess, A. W., & Holmstrom, L. L. (1977). Rape: Power, anger, and sexuality. *American Journal of Psychiatry*, 134, 1239–1243.
- Guay, J. -P. (2001, November). Intelligence scores of MTC: R3 Rapist subtypes. *Paper presented at the 20th meeting of the Association for Treatment of Sexual Abuser (ATSA), San Antonio, Texas*.
- Guay, J. P., Ouimet, M., & Proulx, J. (2004). Criminal justice institutional referrals and selections: A comparative portrait of sexual aggressions and aggressors. *International Journal of Offender Therapy and Comparative Criminology*, 48, 330–346.
- Guay, J. -P., Proulx, J., Cusson, M., & Ouimet, M. (2001). Victim-choice polymorpha among serious sex offenders. *Archives of Sexual Behavior*, 30, 521–533.
- Haaven, J., Little, R., & Petre-Miller, D. (1990). *Treating intellectually disabled sex offenders: A model residential program*. Vermont: Safer Society Press.
- Hall, G. C. N. (1988). Criminal behavior as a function of clinical and actuarial variables in a sexual offender population. *Journal of Consulting and Clinical Psychology*, 56, 773–775.
- Hanson, K. R., Scott, H., & Steffy, R. A. (1995). A comparison of child molesters and nonsexual criminals: Risk predictors and long-term recidivism. *Journal of Research in Crime and Delinquency*, 32, 325–337.
- Herrnstein, R. J., & Murray, C. (1994). *The bell curve: Intelligence and class structure in American life*. New York: Free Press.

- Hirschi, T., & Hindelang, M. J. (1977). Intelligence and delinquency: A revisionist review. *American Sociological Review*, 42, 571–587.
- Hodges, K., & Plow, J. (1990). Intellectual ability and achievement in psychiatrically hospitalized children with conduct, anxiety, and affective disorders. *Journal of Clinical Psychology*, 38, 830–837.
- Holland, T. R., Beckett, G. E., & Levi, M. (1981). Intelligence, personality, and criminal violence: A multivariate analysis. *Journal of Consulting and Clinical Psychology*, 49, 106–111.
- Holland, T. R., & Holt, N. (1975). Prisoner intellectual and personality correlates of offense severity and recidivism. *Journal of Clinical Psychology*, 31, 667–672.
- Hucker, S., Langevin, R., Wortzman, G., Dickey, R., Bain, J., Handy, L., et al. (1988). Cerebral damage and dysfunction in sexually aggressive men. *Annals of Sex Research*, 1, 33–47.
- Kandel, E., Mednick, S. A., Kirkegaard-Sorensen, L., Hutchings, B., Knop, J., Rosenberg, R., et al. (1988). IQ as a protective factor for subjects at high risk for antisocial behavior. *Journal of Consulting and Clinical Psychology*, 56, 224–226.
- Karacan, I., Williams, R. L., Guerrero, M. W., Salis, P. J., Thornby, J. I., & Hirsch, C. J. (1974). Nocturnal penile tumescence and sleep of convicted rapists and other prisoners. *Archives of Sexual Behavior*, 3, 19–26.
- Knight, R. A. (2001, November). The revision of MTC:R3: Incorporating dimensional disconfirmation. *Paper presented at the 20th meeting of the Association for Treatment of Sexual Abuser (ATSA), San Antonio, Texas.*
- Knight, R. A., & Prentky, R. A. (1990). Classifying sexual offenders: The development and corroboration of taxonomic models. In W. L. Marshall, D. R. Laws, & H. E. Barbaree (Eds.), *Handbook of sexual assault: Issues, theories, and treatment* (pp. 23–52). New York: Plenum.
- Knight, R. A., Rosenberg, R., & Schneider, B. (1985). Classification of sexual offenders: Perspectives, methods and validation. In A. W. Burgess (Ed.), *Rape and sexual assault: A research handbook* (pp. 23–52). New York: Garland.
- Kratzer, L., & Hodgins, S. (1999). A typology of offenders: A test of Moffitt's theory among males and females from childhood to age 30. *Criminal Behaviour and Mental Health*, 9, 57–73.
- Langevin, R., Paitich, D., & Russon, A. E. (1985). *Erotic preference, gender identity and aggression in men*. Hillsdale, NJ: Lawrence Erlbaum.
- Langevin, R., Wortzman, G., Wright, P., & Handy, L. (1989). Studies of brain damage and dysfunction in sex offenders. *Annals of Sex Research*, 2, 164–179.
- LeBlanc, M., & Fréchette, M. (1989). *Male criminal activity, from childhood through youth: Multilevel and developmental perspectives*. New York: Springer-Verlag.
- Lueger, R. J., & Cadman, W. (1982). Variables associated with recidivism and program-termination of delinquent adolescents. *Journal of Clinical Psychology*, 38, 861–863.
- Lund, C. A. (1992). Long-term treatment of sexual behavior problems in adolescent and adult developmentally disabled persons. *Annals of Sex Research*, 5, 5–31.
- Lynam, D. R., Moffitt, T. E., & Stouthamer-Loeber, M. (1993). Explaining the relation between IQ and delinquency: Class, race, test motivation, school failure, or self control? *Journal of Abnormal Psychology*, 102, 187–196.
- Magdol, L., Moffitt, T. E., Caspi, A., & Silva, P. A. (1998). Developmental antecedents of partner abuse: A prospective-longitudinal study. *Journal of Abnormal Psychology*, 107, 375–389.
- Marques, J. K., Day, D. M., Nelson, C., & West, M. A. (1994). Effects of cognitive-behavioral treatment on sex offender recidivism: Preliminary results of a longitudinal study. *Criminal Justice and Behavior*, 21, 28–54.
- McKibben, A. (1993). La classification des agresseurs sexuels. In J. Aubut (Ed.), *Les agresseurs sexuels: Théorie, évaluation et traitement* (pp. 58–78). Montréal: Les éditions de la Chenelière.
- Meehl, P. E. (1973). MAXCOV-HITMAX: A taxonomic search method for loose genetic syndromes. In P. E. Meehl (Ed.), *Psychodiagnosis: Selected papers* (pp. 200–224). Minneapolis: University of Minnesota Press.
- Meehl, P. E., & Yonce, L. J. (1996). Taxometric analysis: II. Detecting taxonicity using covariance of two quantitative indicators in successive intervals of a third indicator (MAXCOV procedure). *Psychological Reports*, 74, 1059–1274.
- Moffitt, T., Caspi, A., Silva, P. A., & Stouthamer-Loeber, M. (1995). Individual differences in personality and intelligence are linked to crime: Cross-context evidence from nations, neighborhoods, genders, races, and age-cohorts. In J. Hagan (Ed.), *Current perspectives on aging and the life cycle. Delinquency and disrepute in the life course: Contextual and dynamic analyses* (pp. 1–34). Greenwich, CT: JAI Press.
- Moffitt, T. E. (1990). The neuropsychology of delinquency: A critical review of theory and research. *Crime and Justice: An Annual Review of Research*, 12, 99–169.

- Moffitt, T. E., Gabrielli, W. F., Mednick, S. A., & Schulsinger, F. (1981). Socioeconomic status, IQ, and delinquency. *Journal of Abnormal Psychology, 90*, 152–156.
- Moffitt, T. E., & Silva, P. A. (1988). IQ and delinquency: A direct test of the differential detection hypothesis. *Journal of Abnormal Psychology, 97*, 330–333.
- Murchison, C. (1926). *Criminal intelligence*. Wisconsin: Wisconsin University Press.
- Okami, P., & Goldberg, A. (1992). Personality correlates of pedophilia: Are they reliable indicators? *Journal of Sex Research, 29*, 297–328.
- Ouimet, M. (2002). Explaining the American and Canadian crime drop in the 1990's. *Revue Canadienne de Criminologie, 44*, 33–50.
- Pépin, M., & Loranger, M. (1993). *Tests d'aptitudes informatisés (T.A.I. Adulte)*. Québec: Le Réseau Psychotech.
- Pépin, M., & Loranger, M. (1997). *Tests d'aptitudes informatisés (T.A.I. Adulte, 2.0)*. Québec: Le Réseau Psychotech.
- Portugais, C., Daudelin, G., Loranger, M., & Pépin, M. (1995). La stabilité du test d'aptitude informatisé. *L'orientation, 8*, 6–8.
- Proulx, J., Ouimet, M., Boutin, S., & Lussier, P. (2001, July). La carrière criminelle des agresseurs sexuels. *Paper presented at the International Academy of Law and Mental Health, Montréal, Canada*.
- Proulx, J., Perreault, C., & Ouimet, M. (1999). Pathways in the offending process of extrafamilial sexual child molesters. *Sexual Abuse: A Journal of Research and Treatment, 11*, 117–129.
- Ruff, C. F., Templar, D. I., & Ayers, J. L. (1976). The intelligence of rapists. *Archives of Sexual Behavior, 5*, 327–329.
- Ruscio, J., & Ruscio, A. M. (2004). Clarifying boundary issues in psychopathology: The role of taxometrics in a comprehensive program of structural research. *Journal of Abnormal Psychology, 113*, 24–38.
- Schilling, R. F., & Schinke, S. P. (1988). Mentally retarded sex offenders: Fact, fiction, and treatment. *Journal of Social Work and Human Sexuality, 7*, 33–48.
- Spellacy, F. (1977). Neuropsychological differences between violent and nonviolent adolescents. *Journal of Clinical Psychology, 33*, 966–969.
- Spellacy, F. (1978). Neuropsychological discrimination between violent and nonviolent men. *Journal of Clinical Psychology, 34*, 49–52.
- Stark, R. (1975). *Social problems*. New York: Academy Press.
- Swanson, C. K., & Garwick, G. B. (1990). Treatment for low-functioning sex offenders: Group therapy and interagency coordination. *Mental Retardation, 28*, 155–161.
- Tarter, R. E., Hegedus, A. M., Alterman, A. I., & Katz-Garris, L. (1983). Cognitive capacities of juvenile violent, nonviolent, and sexual offenders. *The Journal of Nervous and Mental Disease, 171*, 564–567.
- Vera, H., Barnard, G. W., & Holzer, C. E. (1979). The intelligence of rapists: New data. *Archives of Sexual Behavior, 8*, 375–377.
- Ward, D. A., & Tittle, C. R. (1994). IQ and delinquency: A test of two competing explanations. *Journal of Quantitative Criminology, 10*, 189–212.
- Williams, S. (1999). Alcohol's possible role: Brain dysfunction, paraphilias, and sexually aggressive behaviours. *Sexual Abuse: A Journal of Research and Treatment, 11*, 147–158.
- Wilson, J. Q., & Herrnstein, R. J. (1985). *Crime and human nature*. New York: The Free Press.
- Wolfgang, M. E., Figlio, R. M., & Sellin, T. (1972). *Delinquency in birth cohort*. Chicago: University of Chicago Press.
- Yeudall, L.T., Fromm-Auch, D., & Davies, P. (1982). Neuropsychological impairment of persistent delinquency. *Journal of Nervous and Mental Disease, 170*, 257–265.