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PREDICTORS OF RECIDIVISM AMONG A SAMPLE OF FEDERALLY
SENTENCED SEXUAL OFFENDERS

SARINA A. RANDALL

Submitted to the Department of Criminology
University of Ottawa
in partial fulfillment of the requirements
for the degree of Masters of Arts



Sarina A. Randall, Ottawa, Canada, 1992



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ISBN 0-315-85816-8

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ACKNOWLEDGEMENTS

I would initially like to thank Dr. Robert Ross for his willingness to supervise this thesis. I wish to also extend my appreciation to those in the Research and Statistical Branch of Correctional Services Canada for their continued support. Special thanks to Dr. Frank Porporino who, despite a busy schedule, was able to provide much guidance and encouragement. Thanks also to Dr. Larry Motuik who helped guide the initial data collection and organization as well as Ms. Bessy Pang who assisted in the final stage of the analysis. I would like to acknowledge the contribution of data from the Policy and Program Development Sector of Correctional Services Canada and in particular, Martin Devenport for his much appreciated efforts.

ABSTRACT

The purpose of this research is to determine the factors predicting recidivism among a sample of 222 federally sentenced sex offenders. Based on social and criminal data, a number of predictor variables were significantly correlated with recidivism. These variables were regressed into models of recidivism which resulted in low levels of predictability. There were, however, three prominent factors found in each model for non-sexual offence recidivism, including age, extent of criminal history and number of geographical locations where previously convicted. The results also indicated a number of trends based on correlational data. In particular, a distinction was found between sexual and non-sexual offence recidivism. General non-sexual offence recidivism was found to be associated with extent of prior criminal history and age, while sexual offence recidivism was found to be associated with extent of sexual offence history and not influenced by age.

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INTRODUCTION

In recent years sexual offenders and sexual crimes have become notable topics for both government inquiries and academic research. The proliferation of published literature and media attention across North America has, in effect, alerted the public to what appears to be a prevalent social problem (Robinson, 1988; Furby et al., 1987; Tingle et al., 1986; Malamuth, 1986; Finkelhor, 1983; Wormith, 1983; Bonheur, 1980).

A number of sexual behaviours have been given deviant connotations throughout history, owing to public fear and abhorrence of such activity. Many such behaviours have been prescribed in the Criminal Code. Some of the key offenses are sexual assault, sexual interference, incest, acts of gross indecency, etc. More commonly, these behaviours have been referred to in non-legal terms as, sexual abuse, paedophilia, sexual deviancy, sexual perversion, sexual molestation, etc. Likewise, those who have deviated from public norms of acceptable sexual behaviours have been given labels such as, sexual deviant, pervert, paedophile, sexual degenerate, sexual psychopath and child molester.

Whatever the terminology, it is evident that sexual offenders, particularly repeat sex offenders, are widely considered to pose a serious problem to society and should be

afforded more attention in terms of criminal justice processing, treatment and other measures to ensure public safety.

What is known of the actual extent of sexual offenses is not, nor can ever be, accurately measured due to many of the customary problems associated with criminological phenomena. These include under-reporting of crimes, non-prosecution of charges and other related factors of the criminal justice process. Having noted this, however, estimates found in sexual victimization studies reveal that as many as one in five women will be the victim of sexual assault at one point in her life (Furby et al., 1987). Moreover, the Committee on Sexual Offenses Against Children and Youth, reporting on child sexual victimization, estimated that almost one-third of the public (one in two females and one in three males) had been the victim of an unwanted sexual act (Badgley, 1984).

Prevention of such sex offenders ultimately involves detection and rehabilitation of sexual offenders so that they do not continue such activities unchecked. A practical area of study, therefore, would be an analysis of those sexual offenders who have been processed through the criminal justice system to determine what makes them either continue or stop committing such offenses.

Offender statistical reports reveal an increase in the

number of sexual offenders processed through the criminal justice system in recent years. Aggregate data from the Canadian Federal Offender Population Profile Report of Correctional Services of Canada, for example, indicate that the number of federal offenders incarcerated for a sexual offence has increased from 871 in 1984 to 1385 in 1988. Gordon and Porporino (1990) report a 44% increase in the number of sex offenders incarcerated in federal penitentiaries between 1985 and 1989.

Of particular concern to the public is the effectiveness of the Criminal Justice System to protect society from being victimized by repeat sex offenders (J.J. Peters Institute, 1980). In the past, one of the efforts by the government to address the issue of repeat sexual offenders and the protection of the public resulted in special provisions of legislation to allow for the preventive detention of those sex offenders assessed as likely to commit a subsequent sex offence. From the introduction of the Criminal Sexual Psychopath laws in 1948 to the Dangerous Sexual Offender legislation in 1958, and its change in 1977 to the Dangerous Offender legislation, these offenders have been selected and held in preventive detention indeterminately. Such selection practice has evoked considerable criticism over the years in reference to the accuracy of assessing dangerousness and predicting future behaviour and the

inconsistency with which the provisions have been applied to certain offenders (Wormith, 1986). Greenland (1984) noted that "the most grievous failure of all has been that neither the Parole Board nor the psychiatrists and psychologists employed by it have demonstrated a capacity to reliably predict the DSO's [dangerous sexual offender's] future dangerous behaviour" (p.10). The main controversy lies in the extent to which future behaviour can be accurately predicted and if so what criteria should be used to predict future behaviour of sexual offenders.

The type of research involved in the pursuit of such accuracy demands that we, as researchers, increase our knowledge of sexual offenders in terms of descriptive characteristics, motivation and etiology in order to provide the best possible background from which prediction can be made.

The purpose of such new developments and knowledge in the area should be apparent. First, it adds to the knowledge of those characteristics amenable to treatment - an underlying recommendation in recent reports such as Badgley, 1984; Pepino, 1988; and Daubney, 1988. Second, it may increase the accuracy and fairness of various measures intended to reduce the risk of repeat sexual offending in society. Third, with greater accuracy in predicting future behaviour one might expect to affect the confidence the public

will have in the criminal justice system. If prediction of sex offender recidivism is possible, the ability to develop an efficient prediction model to determine "those offenders who pose the most serious threat to society" (Tarling and Perry, 1985:210) is of utmost importance.

The aim of the present study is to address the prediction of sex offender recidivism. There are essentially two approaches that can be taken in this endeavour. One is a theoretical approach which looks toward a theory of sexual offenders and sexual offenses by analyzing those variables found in past research on the psychopathology and sociology of sexual offenders. The other is an empirical approach which examines the cause and effect of certain variables which are selected from past research on the prediction of sexual offender recidivism. While the theoretical approach attempts to provide an overview of sexual offenders and the potentiality of their recidivism based on theory, the empirical approach looks toward a practical view of the sex offender in terms of those variables more highly associated to recidivism. In addressing the prediction of sex offender recidivism, this present study will take an empirical approach to systematically analyze potential predictor variables selected from prior research in the area. The focus of the research is based on the hypothesis that, when systematically analyzed, certain factors in the criminal and social histories

of sex offenders will demonstrate significant predictability of recidivism.

I

LITERATURE REVIEW

Sexual offenses include a wide range of sexual behaviours which society judges unacceptable due to their injurious nature on the victim(s) (i.e., sexual assault) and/or because they interfere with the rights of others (i.e., voyeurism). The classification of sexual offenses is based to a large degree on characteristics of victims and offenders.

In terms of the victim, classification of the offence will be affected by gender (male or female), age (child or adult), and degree of familiarity to the offender (family member, acquaintance, stranger).

In terms of the offender, the gender (male or female, although the majority are male) and degree of familiarity to the victim (parent, spouse, stranger) is also required to provide indication of the type of offence.

The type of act or the desired behaviour exhibited by the offender will either involve no physical contact (i.e. exhibitionism, voyeurism) or varying degrees of physical contact which may or may not involve an element of force or coercion (i.e. fondling, touching, penetration).

Another component often included in determining the classification of sexual offenses is whether or not consent - informed or understood agreement - to participate has been or

can be given (Quinsey, 1981).

Although this type of classification method may at times force exclusive categories (i.e., labelling one who exposes his or her genitals to a child an exhibitionist as opposed to a paedophile - Quinsey 1981), it does offer a framework in which to categorize and understand the various types of sexual offenses.

Sexual offenses involving adult victims include a number of legal categories such as sexual assault, aggravated sexual assault, sexual assault with a weapon, and indecent assault. The classification of such offenses depends on the amount of force used, the injury inflicted and whether or not consent was given by the victim. In some cases more than one offender may be involved such as in gang rapes.

Sexual offenses pertaining to child victims embody various illegal activities and are categorized according to the victim, the offender and the act (where children under 14 years are concerned, consent can not be used by the offender as a defence). Sexual offenses within the family are more commonly referred to as incest offenses. Incest is a criminal offence involving the sexual activity between related individuals (whether by blood or marriage) such as parent and child or step child; grandparent or uncle and child; or sexual relations among siblings. Non-familial sexual offenses against children are often referred to as homosexual

paedophilia where a male child is involved and heterosexual paedophilia where a female child is involved. Where the child is post-pubertal some researchers use the term hebephilia (Glueck, 1955; Gray and Mohr, 1965). Another familiar term for sexual offenses against children is child molestation which may involve simple touching, fondling, oral-genital contact, genital-genital contact, genital-anal contact, and intercourse by an offender who is not related by blood or marriage to the child (Seng 1986). The legal classifications for sexual offenses against children involve such terms as, Sexual Interference, Invitation to Sexual Touching, Sexual Exploitation, Unlawful Sexual Intercourse with a Minor, Incest, and Indecent Assault (Stewart and Bala, 1988)

A third category of sexual offenses is that of "nuisance offenses" such as exhibitionism and voyeurism. Although neither are seen as particularly dangerous offenses, research indicates a high rate of recidivism among those charged with exhibitionism (Gray and Mohr, 1965; Quinsey, 1981; J.J. Peters Institute, 1980; Christiansen et al., 1965), and further evidence exists to implicate early exhibitionist and voyeuristic tendencies in later rapist and child molesters (Quinsey, 1981; J.J. Peters Institute 1980).

In recent years there has been an increase in the number of convicted sexual offenders. Canadian Federal Offenders Population Profile Reports show that the number of

new admissions for sex offenders rose from 7.1% in 1979 to 13.1% in 1990. With the increase in the number of sexual offenders entering into the criminal justice system it would appear at this time more urgent than ever that research in the area attempt to not only determine those characteristics that differentiate sexual offenders from other offenders but to determine those characteristics amenable to change through treatment as well as those factors predictive of recidivism.

Research in the area has focused on three main aspects of sexual offending:

- * descriptive studies of various homogenous and heterogenous sex offender populations within correctional institutions or treatment facilities (Davis and Leitenberg, 1987; Bard et al., 1987; Tingle et al., 1986; Finkelhor, 1984; Wormith, 1983; Longo and Groth, 1983; Apfelberg, 1944);
- * evaluations of treatment efficacy (Hanson, 1989; Working Group, 1989; Sapp and Vaughn, 1989; Marshall et al., 1988; Bonheur and Rosener, 1980; Bartol, 1980; Knight and Prentky, 1987; Wormith and Borzecki, 1985; Davidson et al., 1985; Borzecki and Wormith, 1984; Quinsey, 1981; Dix, 1976; Pacht and Cowden, 1974; Cohen and Kazol, 1966; Gray and Mohr, 1965);
- * empirical studies measuring recidivism rates of various

sex offender populations (Furby et al., 1989; Tracy et al., 1983; Davidson, 1979); as well as studies examining factors related to sex offender recidivism (Nagayama-Hall and Proctor, 1987; Grunfield and Noriek, 1986; Tracey et al., 1983; Romero and Williams, 1983; Groth et al., 1982; Gibbens et al., 1981; Sturgeon and Taylor, 1980; Soothill and Gibbens, 1978; Soothill and Gibbens, 1978; Soothill et al., 1976; Frisbie, 1969; Christiansen et al., 1965; Fitch, 1962).

What can be determined most clearly from the literature is that sexual offenders do not comprise a homogenous population. Although this would appear obvious, it is often an overlooked fact in most sex offender studies (Working group, 1989). There are as many factors underlying sexual offending as there are types of sexual offenses.

Many approaches have been taken to address the various aspects and issues surrounding sexual offending. Three main types of treatments that have been used are Biological/Organic treatments, Psychotherapy approaches, and Behavioral programs.

Biological/organic treatments have generally concentrated on changing deviant sexual impulses through manipulation of hormone levels. Methods include the use of antiandrogen medications (cyproterone or androcur, medroxyprogesterone acetate or depoprovera and stereotaxic neurosurgery) and castration which reduce the level of testosterone, thought to be responsible for sexual offending.

(Sapp and Vaughn, 1989; Working group, 1989)

Psychotherapy approaches focus on mental and emotional disturbances in efforts to address deviant sexual behaviours. Some of these approaches include individual or group counselling, family therapy, milieu therapy, victim empathy, female identification, sex education, psychodrama, victim confrontation and cognitive therapy (Sapp and Vaughn, 1989; Gordon, 1990). These approaches attempt to address various aspects of the offender's functioning (Working Group, 1989) and thus look toward the role of multiple factors of sexual aggression such as motivational factors, internal and external inhibitors that might prevent an act from being carried out and those providing opportunity for the act to occur (Malamuth, 1986).

Behaviourial approaches to treating the offender concentrate on extinguishing the offender's deviant sexual behaviour and replacing it with more socially acceptable responses (Sapp and Vaughn, 1989). Such therapy often includes aversive conditioning, biofeedback, covert sensitization, orgasmic reconditioning, relaxation/anger management, social skills acquisition, and the like (Sapp and Vaughn, 1989; Wormith and Borzecki, 1985).

The evaluation of treatment efficacy is not conclusive. Few treatment programs include random assigned control groups or provide the means for an adequate follow-up

investigation (Quinsey, 1981; Working Group, 1989; Furby et. al., 1987; Wormith and Borzecki, 1985). What can be determined from the evaluation of treatment programs is that they do not adequately reduce the risk for very serious sexual offenders to consider them safe for release into the community (Working Group, 1989).

One method of reducing the risk to the public is to identify those sexual offenders with a higher potential to recidivate if released into the community. Through these measures, efforts can then be directed toward managing high risk factors in the community under specialized supervision programs. Prediction studies in the area of sexual recidivism are not plentiful nor are those that exist without methodological problems (Furby et al., 1987). . Further complications occur when attempting to produce cross-study comparisons due to the variety of samples used and the variation in follow-up periods. Despite these barriers the following will outline the major findings of 15 studies on sex offender recidivism.

All the findings listed in the literature review were from studies published between 1962 and 1988 from North America and Europe (See Appendix A).

All the research studies employed relatively large samples. Nine studies used correctional sexual offenders only and six used both treated and untreated sexual offenders. No

studies used treated sexual offenders only and in every study the offenders had at least one conviction for a sexual offence. Ten of the studies focused on various types of sexual offenses, two on child molestation/paedophilia, one on unlawful sexual intercourse with a female under 13 years, one on incest and one on rape.

Across all studies the average follow-up period or time at risk was 12.8 years with a range of 3.5 years to 24 years (save for one study which was based on a retrospective analysis and did not include follow-up). Although it has been reported that long term follow-up periods are important in determining the true recidivism rate for sexual offenders, all the studies which had a follow-up period greater than five years reported the majority of eventual recidivism within the first few years after release (Gibbens et al., 1981; Soothill et al, 1978; 1976; Christiansen et al., 1965; Frisbie, 1962). For example, Frisbie (1962) found that 77% of recidivism occurred within the first year of release, followed by a decline to 22% in second year and 5.5% in third year.

The most notable finding arising from the literature was the strong association between re-offending and historical factors, particularly information about previous offenses.

In terms of a past criminal offence record, three main findings appeared prominent. The first was the overall relationship between past criminal record and recidivism.

Christiansen et al. (1965) reported that the rate of recidivism was twice as high for those offenders with a previous record (38.6%) as compared to the rate of recidivism for first time offenders (18.6%). Gibbens et al. (1981) found that 47% of those with two prior convictions of any kind were eventually reconvicted with a sex or violent offence. Frisbie (1969) found that of the 91 sexual recidivists, one third had a prior juvenile record and 62 had adult convictions.

The second finding from the literature was a general criminal background among recidivists indicating that sexual offending was only one of a number of prior anti-social behaviour. Grunfield and Noriek (1986), found that almost one third of the sample had prior convictions for a profit offence prior to the first conviction for a sexual offence while one fourth were found guilty of a profit offence following the first sexual offence. Furthermore, they reported that 10% of the rapists had violent criminal offenses prior to the first sexual offence and 16% were convicted of a violent criminal offence following their first sexual offence. Frisbie (1969) also found general criminal backgrounds in her sample of 887 sexual and non-sexual offenders. Of the 91 sexual recidivists in her study, 42 had prior convictions for sexual offenses while the remaining were for: property offenses (36), offenses against the person (20), drug related offenses (36), and offenses for failure to provide (4). Of those sexual

offenders in Frisbie's study who did not recidivate with a sexual offence (245), 70 had prior convictions for sexual offenses while the remaining were for: property offenses (106), offenses against the person (91), drug related offenses (105) and offenses of failure to provide (18).

The third finding was the likelihood of prior sexual offenses among those who recidivate with a sexual offence. In comparing sexual recidivists with non-sexual recidivists Frisbie (1969), reported that almost twice as many from the sexual recidivist sample had prior sexual offenses (46%) as compared to those in the non-sexual recidivist sample (28%). In a five year follow-up study using a sample of 82 incarcerated sexual offenders, Tracey et al., (1983) concluded that compared to other types of re-offending behaviour the majority of offenders (82%) who had a prior sexual offence record recidivated with a new sexual offence. Sturgeon and Taylor (1980), reporting on the five year follow-up of 260 adjudicated mentally disordered offenders from Atascadero California, observed that of those offenders given a negative recommendation and who had a prior record of strictly sexual offenses 30% re-offended with a subsequent sexual offence. This was compared to 10% of those from the same sample with a prior record for non-sexual offenses only. Romero and Williams (1983) reported that 38% of the sex offender recidivists in their study had two or more sex arrests prior

to intervention. Christiansen et al. (1965) similarly demonstrated a higher rate of recidivism among those with criminal records that were exclusively sexual in nature. In a 10 year follow-up of 231 treated and non-treated sexual offenders by the Joseph J. Peters Institute, an association between re-arrest for sexual offenses and the sex arrest rate per year prior to intervention was observed. In this study 26.2% of those who recidivated with a sexual offence had a prior sex arrest rate between 0.31 and 1.39 per year as compared to the 7.9% of sexual recidivist with arrest rates between 0 and .30 per year. In a study reporting on paedophiles, Fitch (1962) found that of the 35 subjects recommitted for a sexual offence, 14 had prior sexual offence (apart from commitment offence) compared to 6 with only one prior sexual offenses. This result was significant, $\chi^2=22.17$, d.f.2, $p<.001$.

In defining the factor 'sexual deviance' in terms of force, intercourse, and number of previous victims, Barbaree and Marshall (1988) found it to be a significant predictor of recidivism ($F(1,31)=7.12$; $p<.02$). The sexual deviance factor was also significantly related to predicting the number of re-offenses, ($F(1,31)=9.62$; $p<.005$).

The literature review also notes a continuation of the same offence type from previous to subsequent offenses. Using prior arrest record for sexual offenses against adults, sexual

offenses against children, non-sexual violent offenses and non-violent .non-sexual offenses, Nagayama-Hall and Proctor (1987) followed 342 non-psychiatric sex offenders and found that of the four offence types, prior sex offenses against adults demonstrated a significant relationship to rearrest for the same offence ($R=.35$, $F(1,340)=48.78$, $p<.0001$). They also reported a significant relationship between prior arrest for sex offence against children and rearrest for the same offence ($R=.12$, $F(1,340)=5.16$, $p<.03$). Grunfield and Noriek (1986) found that of those committed for rape, child molestation and obscenity charges, subsequent offenses were highest for each according to the same offence, 9.6%, 6.8% and 7.3% respectively. In terms of paedophiles, Fitch (1962) found that although homosexual paedophiles recidivated at a higher rate than heterosexual paedophiles, both recidivated proportionately to their previous behaviour.

The literature also reported on two types of sexual offenses - exhibitionism and incest. One of the more prevalent sexual offenses shown was exhibitionism. It was reported that exhibitionists make up about one third of the sex offender population (Gray and Mohr, 1965; Quinsey, 1981; Bartol, 1980). Evidence exists to indicate a higher propensity for exhibitionists to recidivate compared to other types of sexual offenders. (Gray and Mohr, 1965). Although this type of sexual behaviour is often considered more of a

nuisance offence than a dangerous criminal act, research such as that previously reported in this chapter, showed exhibitionism as a precursor to other more serious deviant sexual behaviours (Quinsey, 1981). Christiansen et al. (1965) reported that "recidivism to the same type of sexual crime is greatest in the case of more deviating forms of sexual criminality" (p.84). In their study 30.8% of the sample were committed for exhibitionism and 12.2% of that population were recommitted for exhibitionism. Through self report evaluations, the Joseph J. Peters Institute found that of those who reported exposing themselves two or more times, 58.3% recidivated.

In contrast to the propensity for exhibitionists to recidivate is the re-offending behaviour of incest offenders. Fitch (1962) reported that incest offenders recidivated less to subsequent sex offenses (2) and more to non-sexual offenses (7) and a greater number did not recidivate (17).

There was some indication of the relationship between recidivism and demographic factors. A relationship between age and sexual recidivism was reported in some studies. Christiansen et al. (1965) found that the likelihood of recommitting a new sexual crime increased with age for young offenders while the likelihood of committing other types of crime conversely decreased. Similarly, the Joseph J. Peters Institute (1980) reported that 75% of offenders between the

age of 18 to 20 years recidivated compared to 50% of those 26 to 34 years old.

In terms of age and type of re-offending, Soothill and Gibbens (1978) found that 27% of the younger offenders who were committed for sibling incest re-offended while only 11% of the older father/daughter incest offenders re-offended.

Age at onset of criminal career was also associated to recidivism. Groth et al. (1982) found that the modal onset age for rapists in both the treated and untreated group was 18 and 16 years respectively. For child molesters both the treated and untreated groups had two modal ages, 13 and 35 years and 16 and 31 years, respectively. Fitch (1962) found that among paedophiles, age at first conviction for sex offence was predominantly earlier in those reconvicted of a sexual offence.

Marital status was also found to be related to recidivism risk. The Joseph J. Peters Institute found that single offenders were three times as likely to recidivate than those who were divorced (66% versus 22%).

Alcoholism was also noted among the sexual offender populations used in the studies. In the literature reporting on the association of alcohol to recidivism, non-sexual recidivists appear to demonstrate a slightly greater tendency to have an alcohol problem as compared to sexual recidivists. Tracey et al. (1983) reported that alcohol was implicated in

53% of the repeat sex offender and 66% of the repeat non-sexual offenders. Frisbie (1962) found that among prior sexual recidivists who re-offended with a non-sexual offence alcoholism was more prevalent. In her study, prior adult records demonstrated that 185 of the 245 of the non-sexual recidivists had prior drug/alcohol offenses compared to 36 of the 90 sex recidivists.

The literature reviewed in this chapter provides a basis from which further research in the area can proceed. A number of factors, particularly criminological predictors were discussed as they relate to recidivism among sexual and non-sexual offenders. Complications arise when attempting to cross reference the findings due to the variation in samples used and length of follow-up. However, extent and type of previous offence record is a consistent finding for predicting sexual and non-sexual offending. Although many factors were introduced and reported as predictive, few studies employed statistical procedures to test for the significance of these factors or for the relatedness of certain factors in predicting recidivism.

Further empirical research in the area is needed to determine the factors most often associated with recidivism. With a rising number of sexual offenders in the Federal System answers to their treatment and/or management are urgently needed.

It is the aim of this present research to provide a statistical approach to the determination of predictive factors of sex offender recidivism.

II

PREDICTING RECIDIVISM

One of the pursuits of criminological research is the development of methods of understanding the etiology of crime in order to better control it and protect society. Much of what occurs in the Criminal Justice System is based on theoretical assumptions of criminal behaviour developed over time. Those who enter the System are put into subcategories based on factors such as offence history, psychiatric history, age and sex. Predictions about the future of these individuals and decisions as to how they should be dealt with are made accordingly (Conrad, 1987; Gottfredson and Gottfredson, 1985; Monahan, 1981; Quinsey, 1981).

The following chapter will discuss the concept of prediction, how it is used in criminological research and practice, what the benefits and the shortcomings are as well as some of the techniques applied in the development of prediction instruments.

Whether at the juncture of sentencing, correctional treatment or parole decision making, a certain degree of discretion by decision makers is guided by the principle that relations observed in the past will hold in the future even though there is no absolute guarantee (Gottfredson and Gottfredson, 1985). In making a judgement or an estimate of

probable future events or behaviour, the decision maker follows, to a certain degree, both a clinical and statistical approach (Gottfredson 1987)

A clinical approach involves the use of subjective factors as discovered through clinical examinations and is based on theoretical models of human behaviour (Zwanenburg, 1977). In assessing the probability of future events the clinician considers the relevance of the criterion to a specific case. As such, each case is said to be unique even though cases at hand are compared with previous ones and at least mentally placed in some subcategory or class. In clinically investigating the future probability of behaviour the clinician is less dependent on comprehensive biographical information relating to the offender and more concerned with an holistic approach focusing on the total personality. The reliability of prediction in such an approach is limited due to the dynamic process involved and the idiosyncratic nature of each case.

A statistical approach to prediction is based on objective information such that the predictor and criterion variables are uniform and tend to be more explicit from one case to the next. As a scientific approach to prediction, it relies on mathematical computation using archival data in which specific factors are compiled in a specific manner. A statistical approach relies more on comprehensive biographical

information relating to the offender and allows for more rigorous testing of validity and reliability. Systematic prediction methods allow for the development of tools or instruments used as aids in decision making. Instruments of prediction help to create homogenous groups of like offenders such that comparisons can be made as to the probability of criminal behaviour or can be used in the allocation of treatment according to some pre-determined guide which takes into account the risk of future behaviour (Zwanenburg, 1977). On a micro-level with regards to individuals, prediction tools allow for general screening of a population for some program-planning purpose and can provide methods, for example, of allocating probationers or parolees to differing levels of supervision intensities. On a macro-level, prediction instruments are used as tools for further research and are also involved in strategic planning or policy formation and other guidelines such as those sometimes used in sentencing or parole decision-making.

In performing decision making duties, systematically derived statistical instruments which rely on a variety of mathematical techniques and subjected to a series of tests for validity are said to be "more reliable and more valid than unguided or intuitive clinical prediction" (Gottfredson and Gottfredson, 1985:55).

The history of scientific prediction in criminology

dates back over half a century (Von Hirsch, 1985; Nuffield, 1982). Based on the traditional aim of science, the underlying assumption in prediction is that nature, subject to change, will change slowly and therefore some consistency will be found over time. What is sought is the relationship between observations of the past and general future expectations (Gottfredson and Gottfredson, 1985; Wilkins and MacNaughton-Smith, 1963). Through scientific rigor, however, future events are approached with some accuracy by predicting future events based on what is known in the present. Thus, criminological science can gather information for the identification of future criminals by systematically searching for characteristics of individuals or of their environment on the assumption that the configuration of items of information is not purely accidental (Zwanenburg, 1977; Wilbanks, 1985).

Criminological research relies on the extent to which scientific prediction can provide evidence to support hypothetical assumptions about criminality. As Nacci (1978) wrote:

scientific investigation of repetitive criminality is an essential component in the development of a theory of criminality. Total crime can be reduced if we understand crime and criminals better. Reduced recidivism rates will not necessarily directly affect total crime - changes in total crime eventually will

be achieved by applying better theories of criminality
(pp.255)

In using information at one point in time to estimate the probability of some future event or behaviour, those in the seat of decision making take part in the first step of decreasing the criminal activity in a society and increasing the treatment and classification policy in the Criminal Justice System thus to provide greater protection to society (Gottfredson and Gottfredson, 1985).

Scientific prediction permits a researcher to isolate from a large body of possible biological and socio-cultural influences those relatively few crucial factors that demonstrate a strong association to antisocial behaviour and allows for more intensive exploration of the dynamics of causation in the most relevant areas. Although those factors found to be the most important predictors are not all directly causal of recidivism, they may be important in focusing attention on the areas in which further and deeper exploration is more likely beneficial (Glueck and Glueck, 1960).

In the understanding and controlling of crime, scientific prediction tends to focus on those factors which can potentially relate to recidivism. Recidivism generally refers to the "reversion of an individual to criminal behaviour after he or she has been convicted of a prior

offence, sentenced and (presumably) corrected" (Maltz, 1984:1). The use of recidivism as a criterion tends to focus on the:

concatenation of failures: failure of the individual to live up to society's expectations - or failure of society to provide for the individual; a consequent failure of the individual to stay out of trouble; failure of the individual as an offender to escape arrest and conviction; failure of the individual as an inmate of a correctional institution to take advantage of correctional programs - or failure of the institution to provide programs that rehabilitate; and an additional failure by the individual in continuing in a criminal career after release.

(Maltz, 1984:1)

In whatever context the term recidivism is placed, it denotes a criterion variable by which behaviour is or will be measured. As a criterion variable it must be operationally defined to include an explicit behaviour for which it represents. In order to measure the criterion reliably, it is important to the outcome of the research to indicate which behaviour or behaviours must be elicited during the observation period. For example, rearrest, or reconviction following the release of an individual from a correctional

institution indicates a new behaviour for which recidivism was measured. The situation, however, becomes complicated when considering the recidivism rates for certain types of offenders. If, for instance, the researcher is concerned with the recidivism rate of armed robbers, does he or she focus specifically on future armed robbery offenses only or on any offence type for those offenders. Depending on the objective of the particular piece of research the focus may be specific or general or it may opt to rank the types of reoffending behaviour according to seriousness. Whatever the objective is, the definition used for recidivism is indicative of the theoretical approach in operation. In order to guard against biased measurements, "the values of the predictor variables should be recorded at some time earlier than those of the criterion ones" (Farrington and Tarling, 1985:3).

Also involved in the definition of the recidivism variable is the indication of a time frame for which the behaviour will be monitored. In most research the time frame runs for a period of time following the release of an offender from a correctional institution (Rahim, 1984). The interval is often measured in terms of the time period between two events: time of release (whether from a correctional institution, a supervision period, a correctional program) and time of recidivism which depends upon the release event (Maltz, 1984).

There are a number of statistical considerations when defining recidivism such as, "changes in law, unreported crime, police and prosecutorial procedures that vary among jurisdictions" (Rahim, 1984:10). Other concerns can include the availability of data from which predictions are based.

Quantitative techniques of prediction focus on a binary outcome of success or failure as defined in the objective of the research. Variables used in prediction are often dichotomized and entered into a 2x2 contingency table where the rows and columns represent the attribute variable upon which the subjects in the study will eventually be classified. As demonstrated in Figure 1, below.

a	f		
c	a		
t	i	false	positive
u	l	negative	hits
a		1	2
l			
b	s		
e	u		
h	c	negative	false
a	c	hits	positive
v	e	3	4
i	e		
o	d		
u			
r			

PREDICTIVE BEHAVIOUR

Fig 1. 2x2 Contingency

In prediction, one of four situations will result.

Cell 2 and Cell 3 represent those positively predicted cases of either success (cell 2) or failure (cell 3). Cell 1 and Cell 4 represent those cases in which the predicted failure (cell 1) and predicted success (cell 4) were inaccurate. The first case (cell 1) is considered a type I error or a false negative error which is seen as an error of ineffectiveness in which needs for services are not met. The second case (cell 4) is considered a type II error or false positive error which is seen as an error of inefficiency as it results in the delivery of services to those not requiring them. These latter cells are referred to as errors in prediction and are most important for the researcher. Both false positive and false negative results depend largely on the base rate of the target behaviour. Gabor (1986) explains that "an increasing base rate, with the sensitivity of the predictive device held constant will reduce the number of false positive and increase the likelihood of false negatives. A decreasing base rate will have the opposite effect". (p.14).

The values in the 2x2 contingency tables are influenced by two factors - chance and the cutting score. Chance is the function of the marginal values of the table. The marginal values represent the base rate and the selection ratio. The base rate is the row marginal distribution which describes the relative frequency of occurrence of that event in the population of interest and is expressed as proportions

or percentages. The selection ratio is the column marginal distribution which represents the proportion of individuals or events studied and is identified by the prediction method as belonging to the outcome classification of interest. Together these determine the distribution of cases within the table, subject to one degree of freedom. One degree of freedom refers to the fact that in a table such as this one, a single cell is occupied by an allowable number and all remaining cells must be assigned a number determined by the difference between the occupied cell and the marginals. Therefore since only one cell is free to vary, there is one degree of freedom. In a contingency table, of 'r' rows and 'c' columns, there would be $(r-1) \times (c-1)$ degrees of freedom.

Chance occurrences are taken into account by the Chi square calculation. Chi square is the function of the rows and columns in the table as well as the number of cases considered and the relation beyond that expected by chance. The Chi square test is used to determine whether the two variables in the design are independent of one another. As a non-parametric test, the Chi square can be used with ordinal scales as well as discrete sampling distribution. The Chi square test determines whether the observed frequencies differ significantly from the expected frequencies.

Prediction instruments in criminology are based on various types of information and designed to estimate risks of

future criminality among defined classes of persons. The rate of recidivism for such groups is the fraction or percentage of individuals who recidivate within a designated period of time following release (Maltz, 1985).

There are a number of considerations when determining the utility or accuracy of a prediction instrument. They include: the method selected to combine the information; the reliability of the information used and the criterion variable chosen; the base rate used as expressed in proportions or percentages; the selection ratio used or the proportion of those studied and identified as belonging to the outcome classification of interest; the representativeness of the population used; and cross validation of the sample.

Other criteria for accuracy are simplicity, efficiency, reliability and validity. Simplicity refers to the proper use of an instrument so as to avoid possible negative effects that can result from improper use or from an instrument being too complex for the researchers to comprehend. Efficiency is obtained when the means reaches a maximum result or conversely when the result is reached with a minimum means. Reliability refers to the stability by which measurements may be made. Conceptually, it looks toward the actual score as a simple function of the ideal 'true' score with some random error or noise coming into play. The true score is that which the scale operationally measures which

coincides with that which the scale purports to measure. The error component of the prediction gives the unreliability in the application of the scale. If the error component does not exceed the limit beyond which misclassification will take place, a reliability coefficient of less than 1 occurs which is completely satisfactory. Validity to some extent influences reliability. Tests of validity look to compare the predicted outcomes to the actual behaviour. There are four types of validity - predictive, concurrent, content and construct. Predictive validity looks at the predictive power coefficient and is concerned with the relation between a measurement or statement and reality. Concurrent validity is the measurement of the discriminate power where a distinction can be made between two groups ie., delinquents and non-delinquents. Content validity expresses the extent to which items of information used in the tests are representative of the particular real-life situation in which the criterion behaviour takes place. Construct validity is the total relationship of some test to all other tests with the same purpose and to the available body of knowledge. Construct validity assists in relating criminality, for example, to broader categories of behaviour. Continued validity in an instrument requires periodic retesting of the instrument which insures that the population to which it is applied has not changed over time in terms of their selection or other causes

(Simon, 1977).

When applying the prediction tool that is developed from a construction sample, to other like populations, a decrease in predictive efficiency can occur. This is known as shrinkage (Farrington and Tarling, 1985) Over time, space and place an instrument must be put into check in order to minimize the extent of shrinkage.

In constructing tools for prediction the general aim is to develop methods for combining predictor variables that will play a role in the outcome classification under study. There are different multivariate techniques used in prediction studies (See Appendix C).

III

METHODOLOGY

Setting

In May 1987 the then Offender Policy and Programs Development Sector of Correctional Services Canada conducted a nation-wide Mental Health Survey to examine the prevalence of mental disorders or dysfunctions among federally sentenced offenders in minimum security institutions or on conditional release. The total population used was 10,030 offenders. Based on the judgement and perception of case management officers (CMOs), the Survey sought to determine what mental health concerns existed and what services were or were not available to meet these concerns. More specifically, each CMO in the Survey was directed to state and list (according to seriousness) any identifiable psychological or behavioural disorder; to identify what mental health intervention the offender had been involved in or was involved in at the time; to determine whether the resources available were adequate to meet the offender's specific needs; and to provide information on whether or not the offender would pose a threat to society due to their particular mental health problem (See Appendix D). The use of CMOs as opposed to mental health professionals in the Survey was seen as a beneficial component "since the

duties of case workers [CMOs] include forming judgements on whether their clients [have] a disorder and also seeking out appropriate resources to deal with the disorder. (Correctional Services Canada-Offender Policy and Programs Development Sector, May 1988:5).

The Survey listed and defined ten different mental health problems that included: suicide type; serious depression; serious thought disorder; socially and/or mentally incompetent; violence and/or aggression prone; serious sexual dysfunction; substance abuse; controlled thought disorder and/or controlled affective disorder; stress induced psychological deterioration; and other serious disorder. An offender could be listed as having more than one mental health problem which was then ranked according to seriousness and the potential for it to cause the offender difficulty or to be at risk when in the community.

The results of the Survey provided important information in terms of the types of mental health problems that existed among this population as well as the potential risk that these problems pose to society. There were two critical aspects to the Survey and the population used. The first was that the offenders were under Federal jurisdiction which often implies a longer sentence for more serious criminal offenses or more habitual criminal offending. The second is that at the time of the Survey, most of the

offenders were on conditional release in the community while the remainder were in minimum security with eligibility for day parole and/or in the last phase of custody before conditional release. The identification of those offenders with mental health problems, perceived by CMOs as a risk for future criminal offending, would therefore be a cause for concern since many had been conditionally released and others were to be released following minimum security custody.

Of the 10,030 offenders listed in the Survey, 1,186 (11.4%) were identified as having one or more mental health problems and perceived to be a potential risk due to this problem (s).

One of the more serious and prevalent mental health problems identified in the Survey, was 'serious sexual dysfunction'. Offenders listed in this category were those fitting the following description:

substantial sexual disorder which is a source
of considerable distress for the inmate/parolee;
creates a problem for the general inmate population;
and/or will likely create problems for the public;
the sexual disorder is likely to lead to criminal
acts after release.

(p.8)

Among the 1,186 offenders identified as having a mental health problem, 'serious sexual dysfunction' was

identified as the third most prevalent disorder type reported with 280 cases. Of these cases, 70.7% fell into the primary disorder type, while for the remaining 20.3% of the cases serious sexual disfunction was listed as a secondary or tertiary mental health problem.

The identification of this particular population provided a basis for a follow-up analysis not only to determine whether the informal judgements made for reoffending behaviour were accurate but also to determine through statistical prediction methods the common characteristics among those who reoffend. This was the main impetus of the present study which observed the identified sample for a period of two and one half years following the Survey date.

There were three main reasons why the Mental Health Survey was used to select the sample population for this present research. Firstly, the subjects had been identified by Case Management officers in a recent National Mental Health Survey as having a serious sexual dysfunction and a potential risk to society. Secondly, since the subjects had been previously understudy in the Survey, there was greater accessibility to social and criminal data necessary for this research. Thirdly all the subjects were federal offenders either in the community or in minimum security awaiting conditional release and therefore recidivism data would be easier to obtain.

Sample

A total of 280 male offenders were identified in the results of the Survey as having a serious sexual dysfunction. In order to verify these results, the tabulation sheets used in the Survey were obtained for the entire population used (N=10,030). Upon careful scrutiny of each tabulation sheet, 17 additional offenders who had not been identified in the results with this particular dysfunction but who had been originally identified by CMOs, were added to the sample for this study. This increased the sample to 297 offenders who initially formed the sample for this present research.

At the onset of the research, three requirements were made for inclusion into the sample. First, the offender had to have been identified in the Survey as meeting the criteria for serious sexual dysfunction. Second, the offender had to have been federally sentenced. Third, the offender had to have had at least one conviction for a sexual offence. In order to ascertain whether or not these requirements were met, data on each of the 297 offenders were obtained from two automated systems - Canadian Police Information Centre (CPIC) and the Offender Information System (OIS). Of the 297 offenders in the original sample, 47 had never been convicted of a sexual offence and 28 were provincial offenders. These 75 offenders were therefore eliminated, reducing the sample to 222 federal offenders who were identified as being at risk for

release due to a serious sexual dysfunction and who had at least one conviction for a sexual offence in their criminal history. At the time of the initial Survey, 21% of the 222 offenders were in minimum security while 79% were on conditional release in the community. The average age was 37.5 years, the age range 19 to 78 years, the modal age 34 years.

Instruments

There were two types of secondary data gathered for the research. The first was information of a qualitative form, collected and interpreted by the Policy and Programs Sector of Correctional Services Canada. The second was quantitative data in the form of official statistics collected by two separate central government departments. One of these automated systems was that of the Canadian Police Information Centre (CPIC). The other was the Offender Information System (OIS). Three benefits are said to come from the use of official records: they are based on regularized procedures often under external audit; they are more precise than an informant's memory and may extend farther into the past than any living informant (National Institute, 1975).

Information was gathered and transformed into usable variables with the aid of a coding manual developed specifically for the research (See Appendix B). The coding

guide was set up to provide six separate files of variables. Each file directed the order in which the variables would be listed as well as the scale by which each variable would be recorded. Apart from those variables which identified each subject (subject number, name and finger print serial number) 122 variables were listed in the guide within the six data files. The first data file was derived from all the information from the Mental Health Survey. The second and third data files contained information from CPIC on past and current data and specific sex offence history information, respectively. The fourth file, also from the CPIC data base, recorded variables related to release information as obtained during the observation period. The fifth file, recorded from OIS data base, focused on demographic information as well as past and current criminal history. The sixth file, also from OIS, was specific to release information.

Once recorded on coding sheets, all variables were entered and stored on a computer system and later analyzed using the computer software program Statistical Analysis System (SAS).

Procedure

Once the sample population was chosen a period of two and one half years was set out for the follow-up period. In this way, the research followed a prospective design for data

gathering. In prospective designs events relating to each subject were recorded as they occurred. They are beneficial in that they limit the chance for biased data since events are recorded as they unfold during a specific observation period. (Furby et al. 1987). Unlike retrospective designs in which the events are laid out and information can be chosen or altered according to the researchers expectations, prospective designs when carried out systematically, concentrate on gathering all available information without inference or expectations by the researcher. Because it has only been hypothesized, from the outset of the study, that there are factors predictive of sex offender recidivism, the results of the analysis could conclude otherwise. In the present method chosen to gather the data, all available information was used despite possible doubts as to the importance any of the variables would play in the results.

The follow-up period of two and one half years began on the date in which the subjects had been identified in the Survey as having a serious sexual dysfunction and at risk for future criminal behaviour. The Survey date, therefore, marked a point in time in which an informal prediction had been made by CMOs as to the likelihood of future criminal offending. Whether the subject was in the community when the Survey was conducted or in minimum security with potential for partial release (day parole) at the time, the observation period was

initiated at that point in time. Because not all the subjects in the sample population were in the community at the onset of the study, outcome variables were created to account for the different time periods at risk.

There were two types of variables used in the research. First were the predictor variables or independent variables which corresponded to past and present (current) data. Taken from the three data sources used in the research, present or current data referred to all information surrounding the current offence - offence for which the subject was convicted of that placed him under the jurisdiction of the courts at the time of the Survey. Past data, coded from both automated systems, was information recorded prior to and leading up to the Survey date. In the present study both past and current offence information was used in conjunction with each other.

The second type of variable recorded was the dependent or criterion variable. In this, as in other such prediction research, the dependent variable was the measure of recidivism. For the purpose of this study, recidivism was defined in terms reconviction for any type of offence; reconviction for a subsequent sex offence; reconviction for a non-sexual offence; any revocation of release; and reincarceration during the two and one half years post assessment date. Another important criterion measure of

recidivism and important in prediction research of this nature, was the time-at-risk prior to recidivism. This measure allows a researcher to focus on the characteristics associated with recidivism at different risk periods. In this research, the time-at-risk variables included, time lapsing until - a new conviction; a new sexual offence conviction; a new non-sexual offence conviction; a revocation; and a new term of incarceration.

Prior to the onset of the observation period a coding manual requiring an examination of the information contained in the three available data sources was developed. Through a transformation process, the information was simplified into distinct observable variables with corresponding scales in order to record the data on each subject. The result was 122 quantifiable variables.

Once the variables had been loaded into the computer, a verification process of proper recording of the variables was conducted. All of the variables were sorted according to the subject number assigned. This was an important procedure to confirm whether or not coding errors had been made which would interfere with the results of the analysis. Following this procedure, the data were grouped together in one data set for further processing. New predictor variables were created based on the presenting variables from the data files.

In order to provide a descriptive bases for the sample

a frequency distribution was carried out. This process allowed for a summarizing and highlighting of the important aspects of the data corresponding to the sample population used.

The main focus of the study was to provide, through statistical analysis, the means by which future criminal behaviour could be predicted among a sample of sexual offenders. For this, the multivariate technique, stepwise multiple regression analysis was chosen. Multiple regression was the choice method selected for various reasons. First, it provides an equation that will allow a criterion variable to be predicted based on the input of data collected on certain variables. Second, it allows variables to be brought into the equation in the order in which they contribute to the prediction equation. Third, it takes into accounts for the interrelationship between certain variables and the criterion variables. Forth, it attaches different correlational weights to certain variables more associated with the outcome. Fifth, it allows for non-dichotomous variables. Sixth, it accounts for the redundant information which accompanies highly correlated variables while maintaining its ability to explain more of the variance. Seventh, it results in heterogenous populations which permit some variability in the subgroups.

In tune with the focus of this research and for future application of the results contained herein, multiple

regression has also been judged as a model with many uses: description, prediction, policy formation and causal modelling (Copper and Week, 1983)

The initial step in the multiple regression technique was to determine, through correlational analysis, the correlation coefficient of each predictor variable to the criterion variables as well as between predictor variables. For this analysis, Pearson's Product Moment Correlation Coefficient technique was used.

Once the correlation coefficients were determined the remainder of the analysis followed the procedure for step-wise multiple regression. The models produced by the stepwise regression procedure were verified by the F test of significance.

IV

RESULTS

DESCRIPTION OF SAMPLE POPULATION

At the onset of the follow-up period, the sample population ranged in age from 19 years to 78 years with an average age of 37.5 years and a modal age of 34. The majority (86%) of the subjects in the sample were Caucasian while 9% were North American Indian and the remaining were from various other ethnic backgrounds. According to listed marital status 44.6% of the subjects were single; 23.4% were married; 14.9% were living common law; 9.5% were separated; 7.2% were divorced; and 5% were widowed. In terms of language, 83.8% spoke English; 9.5% spoke French and 6.8% were identified as bilingual (French and English).

Of those subjects released at the beginning of the follow-up period (55.9%), 43.7% were on mandatory supervision and 12.2% were on full parole. Among those subjects still incarcerated in minimum security during May 1987, 22.5% were granted day parole; 0.9% were granted Unescorted Temporary passes (UTA); 1.8% were under suspension and 18.9% were not released for any reason.

During the follow-up period of two and a half years, further subjects were granted day parole which allowed for employment or education outside the correctional facility. By

the end of the two and a half year period, a total of 94 (42.3%) had eventually been granted a term of day parole.

The subjects in the sample were from all five regions in Canada. At the time of the Survey, 27% of the sample came from the Pacific region; 25% from Ontario; 19% from the Atlantic; 18% from the Prairies and 11% from Quebec.

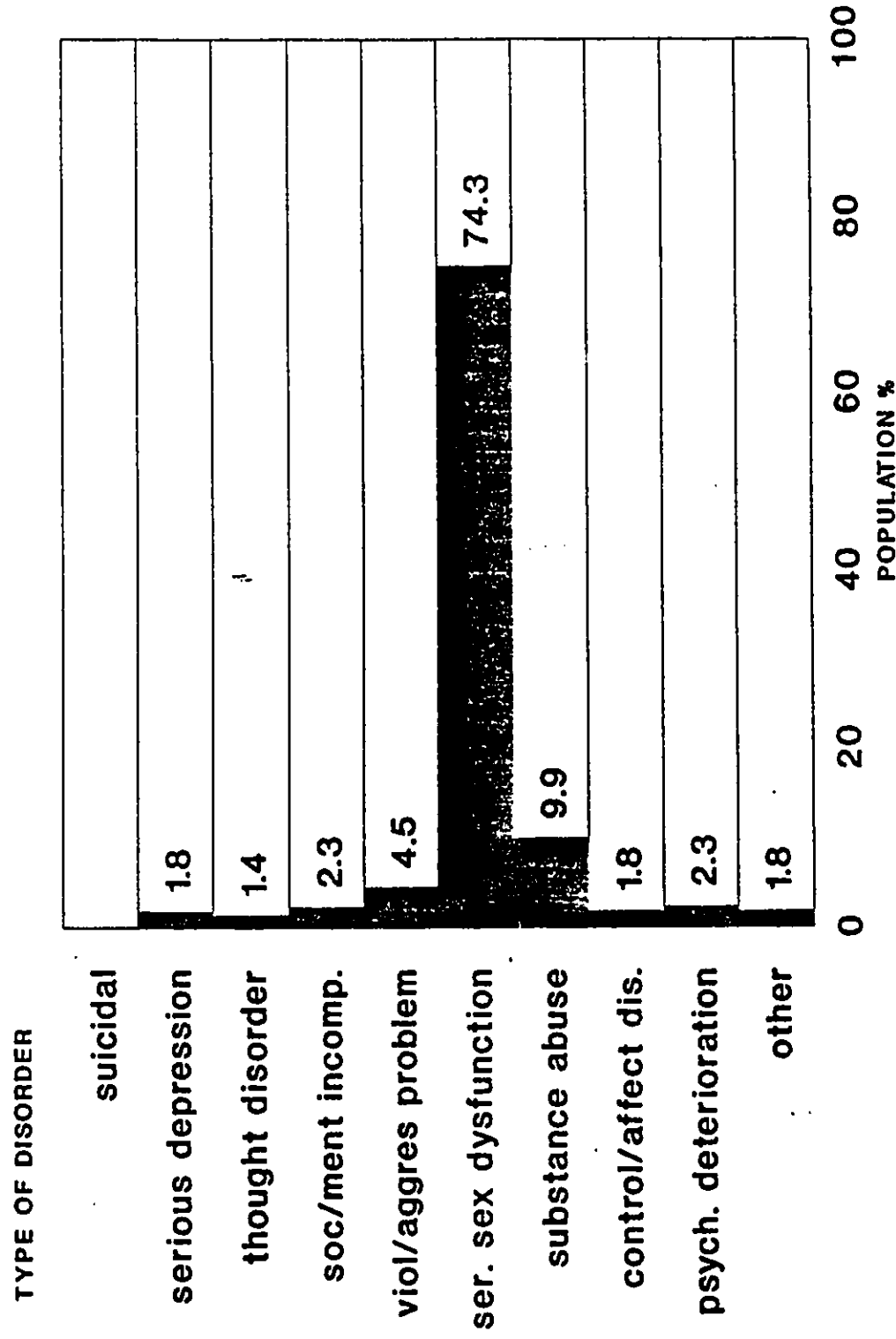
There were various mental health problems identified and ranked according to seriousness by Case Management Officers in the May 1987 Mental Health Survey. Among this sample the number ranged from one to five with the majority having only one (41.4%) or two (27.5%) problems. Graph 1 and 2 illustrate the percentage of subjects with a primary and secondary mental health problem.

INSERT GRAPH 1 and 2

As demonstrated, the majority (74.3%) of the sample were identified as having a serious sexual dysfunction as the primary serious mental health disorder (Table 1). Of the 130 subjects identified with a second disorder, serious sexual dysfunction was identified in 25.3% of the subjects which was second to a substance abuse problem identified in 27.7% of the subjects (Table 2). Among the remaining subjects, serious sexual dysfunction was identified as the third most serious mental health problem in 7.7% of the subjects; as the fourth serious problem in 2.3% of the subjects; and as the fifth most serious problem in 0.9%.

PRIMARY MENTAL HEALTH DISORDER

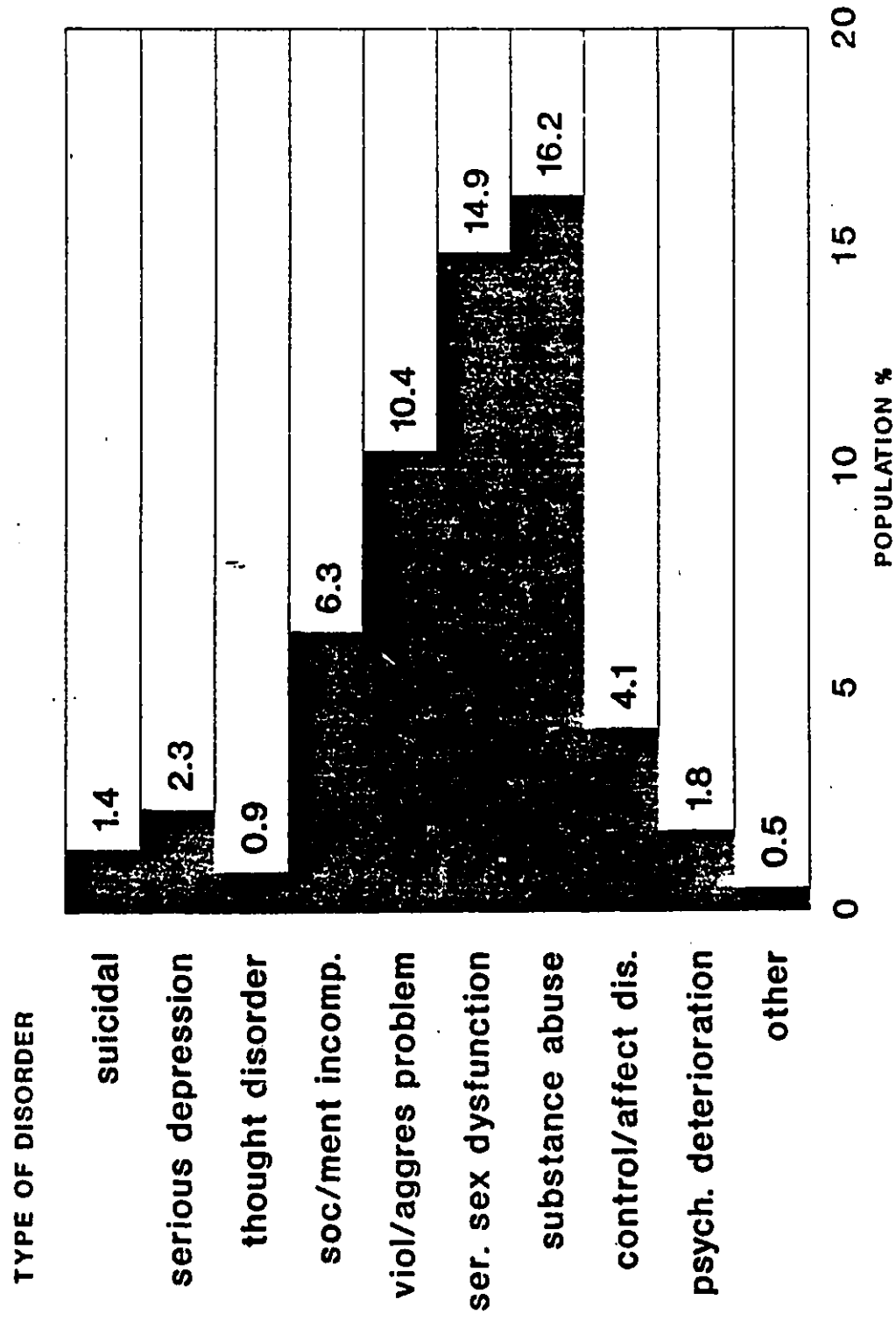
N=222



GRAPH 1

SECONDARY MENTAL HEALTH DISORDER

N=130



GRAPH 2

The Mental Health Survey also gave indication of those subjects involved in some form of mental health intervention. One hundred and sixty-nine (169) subjects were listed as having had previous mental health intervention and 165 were listed as being involved in treatment at the time of the May 1987 Survey. As shown in Graph 3, psychological counselling, whether on a one to one basis or in groups, was by far the more utilized form of mental health intervention with 49% of the population.

INSERT GRAPH 3

The second area of intervention was some form of sexual offender treatment program involving 33.4% of the subjects. The remaining 17.6% of the subjects were involved in other treatment programs.

Graph 4 demonstrates the type of mental health intervention received at the time of the May 1987 Survey.

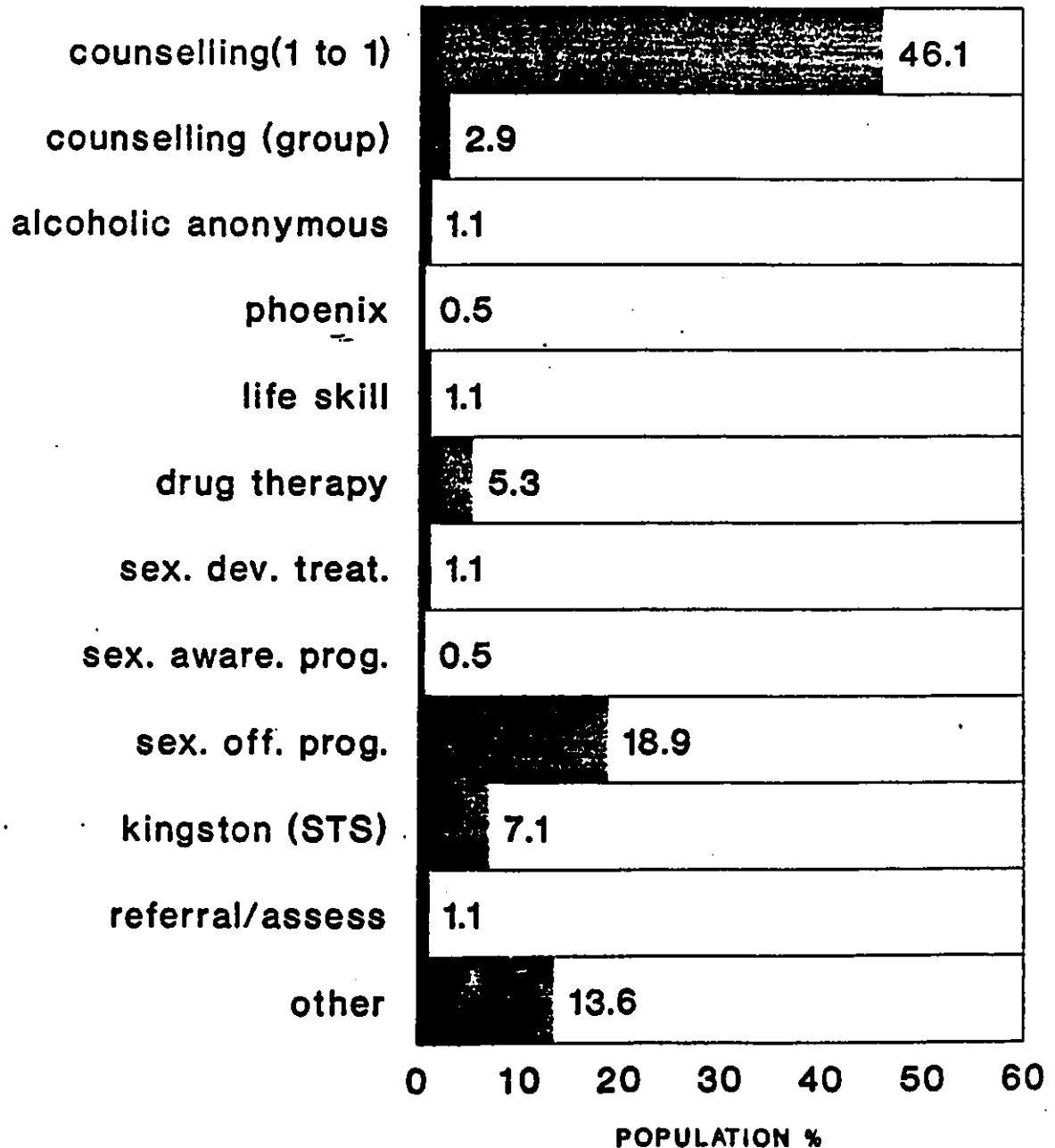
INSERT GRAPH 4

Again it can be noted that psychological counselling (one-to-one or group) was listed more often as the treatment modality (42.2%). Sexual offender programs were listed by 38% of the sample. The remaining types of intervention involved some form of treatment for alcohol/drug addiction (4.8%), anger management (0.6%) and other unspecified treatment.

The data collected on criminal history provided interesting tendencies among the subject population. Of those

PRIOR MENTAL HEALTH INTERVENTION **N = 169**

TYPE OF INTERVENTION

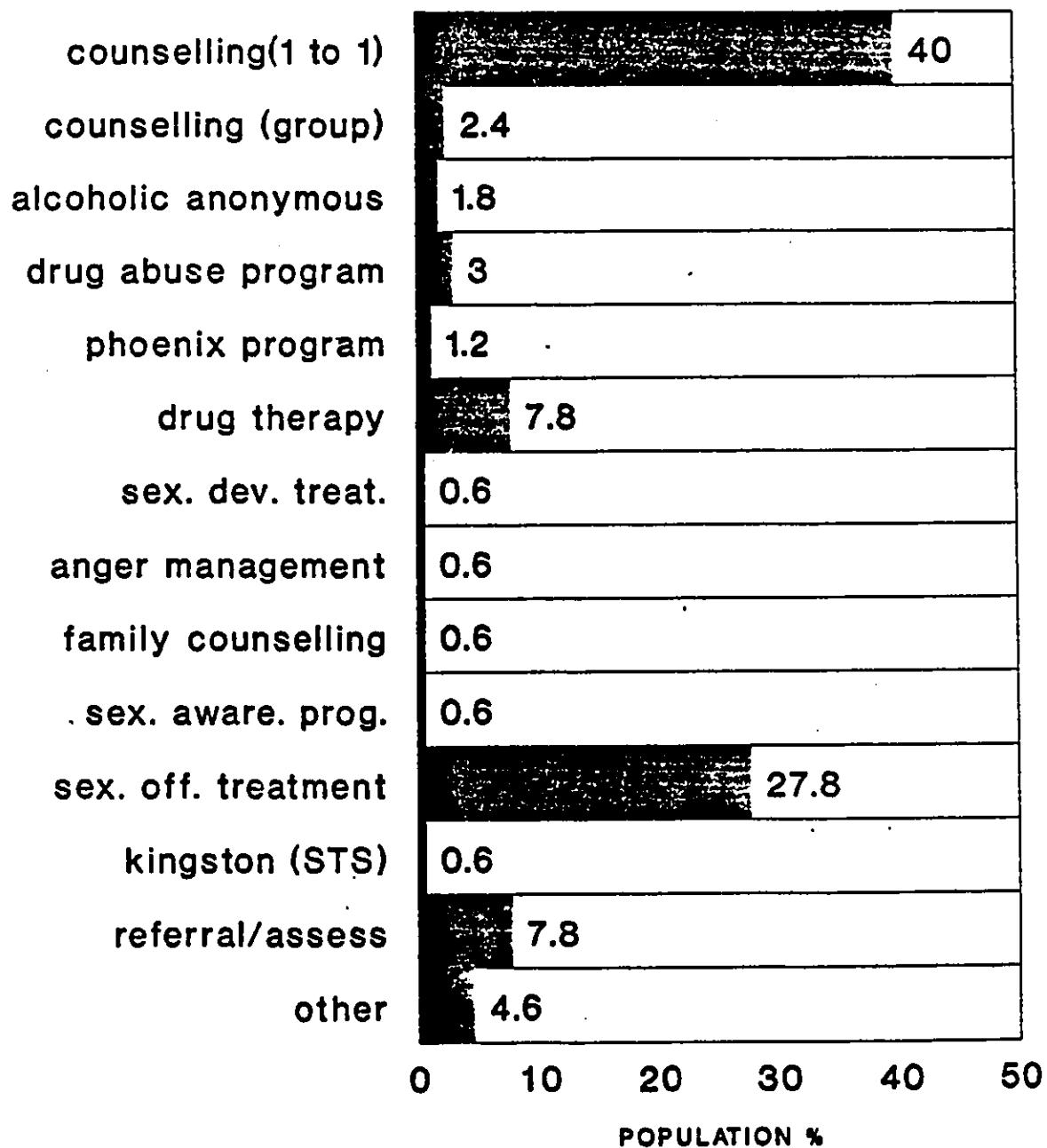


GRAPH 3

PRESENT MENTAL HEALTH INTERVENTION

N = 165

TYPE OF INTERVENTION



GRAPH 4

in the sample with an offence conviction prior to the incidence offence (N=175), the youngest age at first conviction for any offence was 11 years while the oldest was 59 years. The mean age for this group was 22 years and the modal age was 18.

The total number of prior convictions among the sample of 175 subjects ranged from 1 to 76 with an average of 9 prior offence convictions. As illustrated in graph 5, the majority (56%) of these subjects had less than six prior convictions.

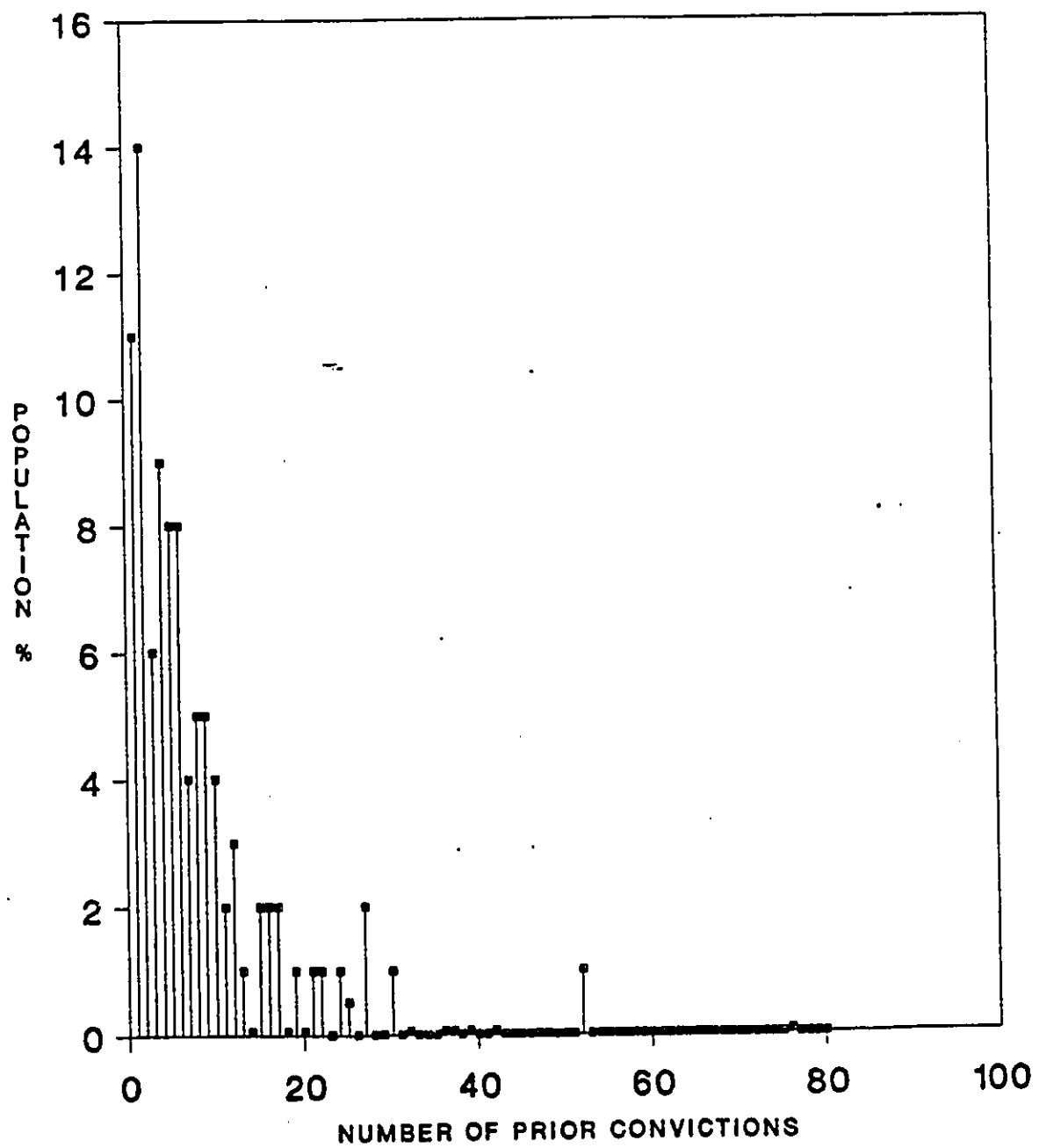
INSERT GRAPH 5

Graph 6 illustrates the three main types of prior serious offenses and the number of subjects convicted for each.

INSERT GRAPH 6

The 46 subjects who were previously convicted for assault represented 20.7% of the population while the 30 subjects convicted of a prior non-violent sexual offence made up 13.5% and the 100 subjects convicted of a violent sexual offence comprise 45% of the sample. Combined, 79.2% of the population were previously convicted of a serious offence. As illustrated in the graph, the range in number of prior convictions was greatest for violent sexual offenses (1 to 17) and less in prior convictions for assault (1 to 7). In all three types of offenses, the majority of the sample population were convicted of 2 or less offenses with a sharp decline in

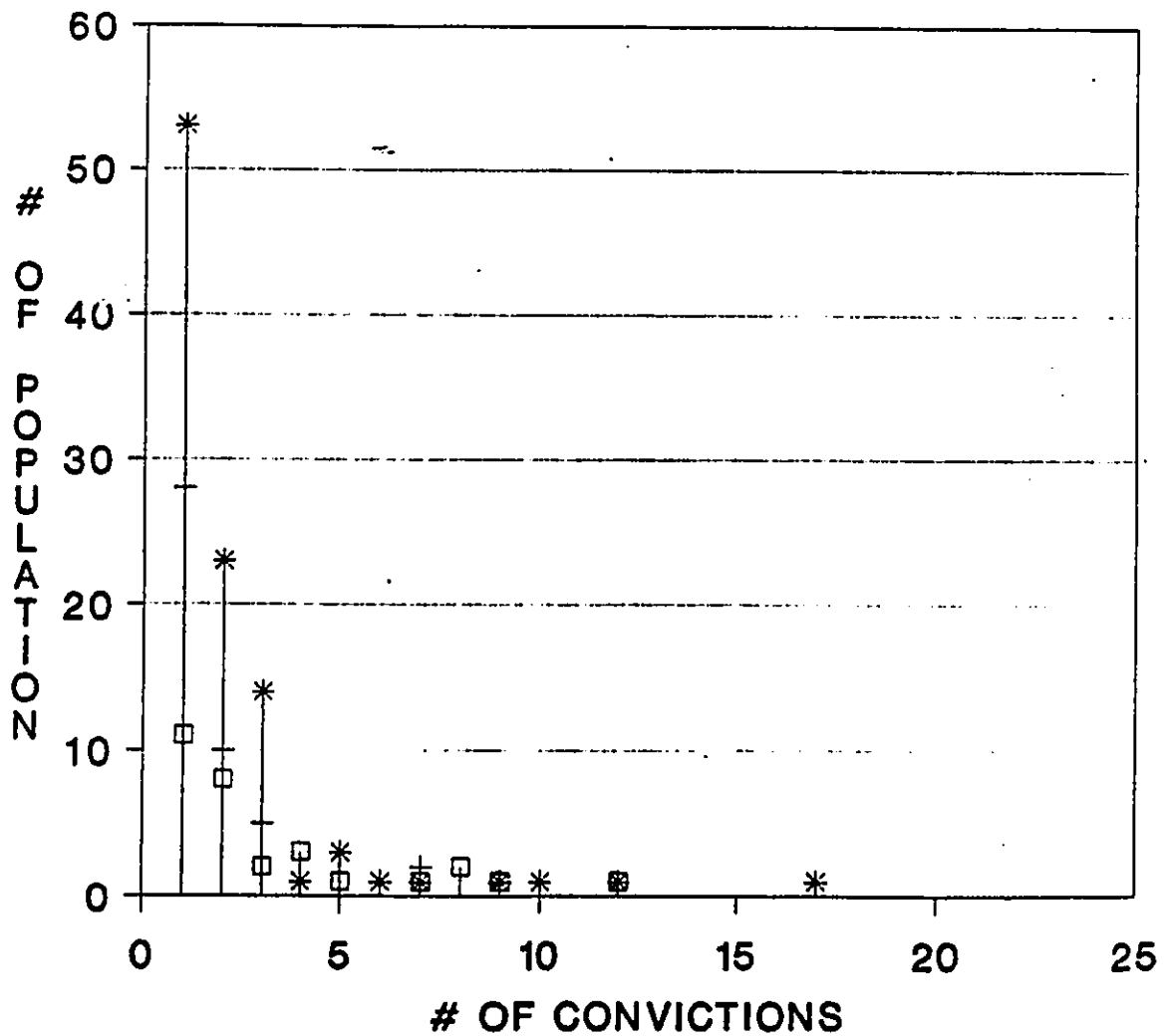
PRIOR CONVICTIONS FOR ANY OFFENCE N=175



GRAPH 5

DISTRIBUTION OF PRIOR CONVICTIONS FOR MOST SERIOUS OFFENCES

—+— ASSAULT —*— VIOLENT SEX OFF.
—□— NON-VIOLENT SEX OFF.



GRAPH 6

the number of subsequent convictions.

Other offence types represented in the sample were conviction for revocation among 30% of the sample and prior escape from custody among 7.7%.

Among the 175 subjects with a prior conviction, only 138 subjects were incarcerated. The range in terms was one to thirty-four with an average of four terms. The majority of these subjects (74%) had less than 5 previous terms of incarceration.

There were a number of different geographical locations recorded in the offenders criminal history where previously convicted. The range of different locations was one to forty with 35.7% of the sample having one location; 29.4% of the sample having two different locations; 12.7% having three; 11.8% having four; and 4.5% having 5 separate locations. The remaining percentage of subjects with more than five locations of conviction decreased sharply. There was a jump made from 11 different locations to 40 locations of conviction which was made by a single subject.

A distribution of subjects by geographical location at the time of incidence offence revealed that, 26% of the sample were in the Pacific region; 23% were in Ontario; 20% were in the Prairies; 19% were in the Atlantic and 12% were in Quebec.

Reflecting on the dispersion of conviction locations for incidence offence it naturally follows that a similar

distribution of subjects would be found for geographical location of admission institution for same. The results showed that 32% of the subjects were admitted to institutions in the Pacific region; 22% in Ontario; 20% in the Prairies; 14% in the Atlantic; and 12% in Quebec.

Looking specifically at the geographical location for prior sexual offences, three separate time periods demonstrated varying representations across Canada. For first sexual offence conviction 26% of the sample were convicted in Ontario; 24% in the Prairie region; 18% in Pacific region; 17% in Quebec; and 15% in the Atlantic. Comparatively, among the 48 subjects with a second sexual offence conviction prior to incidence offence, 29% were convicted in the Prairies; 25% in Quebec; 23% in Ontario; 12.5% in the Atlantic; and 10.5% in the Pacific. In terms of most recent sexual offence conviction prior to incidence offence 31.5% were convicted in Ontario; 31.5% in the Prairies; 21% in Quebec; 11% in the Atlantic; and 5% in the Pacific.

The results of the geographical locations of conviction both prior to and at incidence offence provide an interesting notion about the sample population. With the change in regional representation of the subjects from one conviction period to the next, accompanied by the fact that 64.3% of subjects were listed as having more than one location of conviction, there is the notion that the majority of the

subjects in the sample are migrating from one region to the next through their criminal careers. Moreover, those who have been previously convicted of at least three sexual offences, there also appears to be some movement from one sexual offence conviction to the next.

The collection of criminal history data also revealed more specific findings relating to sexual offence patterns among the sample. Table 1 illustrates the distribution of subjects by age for first conviction and whether or not the conviction was for a non-sexual offence, a violent sexual offence, or a non-violent sexual offence.

INSERT TABLE 1

Of those subjects first convicted with a sexual offence (N=130), the age range was from 11 to 59 years with a mean age of 21 years and a modal age of 17. More specifically, 100 of the 130 subjects first convicted of a sexual offence had committed a violent sexual offence. The youngest age at first conviction for this group was 11 years while the oldest age was 59 years. There was an average age of 21 years and a modal age of 17. The remaining subjects (N=30) committed a non-violent sexual offence at first conviction. The age range for this group was 16 to 34 years with a mean age of 20 years and two modal ages of 17 and 18. The table also demonstrates that just over half of the eventual 175 first convictions, were made by those subjects 20 years old

AGE AT FIRST CONVICTION - OFFENCE TYPE (NON-SEXUAL, NON-VIOLENT
SEXUAL, VIOLENT SEXUAL)

AGE	FREQUENCY			TOTAL
	NON-SEX OFFENCE	NON-VIOLENT SEX OFFENCE	VIOLENT SEX OFFENCE	
11	0	0	1	1
16	5	1	6	12
17	1	7	24	32
18	8	7	22	37
19	2	4	9	15
20	5	1	5	11
21	2	2	7	11
22	0	1	7	8
23	1	0	0	1
24	4	0	1	5
25	1	2	2	5
26	1	2	2	5
27	0	1	2	3
28	3	0	3	6
29	3	1	1	5
30	3	0	0	3
33	1	0	1	2
34	0	1	1	2
35	0	0	1	1
36	0	0	1	1
38	1	0	0	1
40	1	0	0	1
41	1	0	0	1
42	1	0	1	2
45	0	0	1	1
49	1	0	0	1
56	0	0	1	1
59	0	0	1	1
total	45	30	100	175

TABLE 1

and younger. Moreover, the majority of those who committed a sexual offence at first conviction were under 25 years with a large percentage of 17 and 18 year olds committing violent sexual offenses.

Among those subjects with prior charges withdrawn at the court level, 84 had at least one sex offence charge withdrawn. The most pronounced types were, sexual assault charges (33.3%), indecent acts toward female (21%) and gross indecency (17%). The remaining sexual offenses were for various other types.

The number of subjects previously incarcerated for a sexual offence conviction was 93 with a range of terms between 1 and 9. The majority (84%) had less than 2 terms of incarceration. Furthermore, of those subjects given an alternative to incarceration 24 (18.4%) were given a probation term.

Prior to the 1977 change in legislation, the Dangerous Sexual Offender Legislation was in effect. Within the present sample, five subjects had the label applied through the Courts which left them in indeterminate sentences as a preventative measure. The first subject was designated in 1953, the second in 1964, the third in 1968, the forth in 1971 and the fifth in 1975.

PREDICTORS OF RECIDIVISM

The results of the correlation analysis between the

independent variables and outcome measures demonstrated various trends among the sample. Using Pearson's Product Moment Correlation Coefficient analysis, the initial finding was that mental health variables did not show a significant relationship to recidivism while factors of social demographics, criminal history and sexual offence pattern showed marked differences in their correlation to the distinct types of outcome measures of recidivism.

The following is an overview of the correlations found using a general recidivism measure developed from the combination of the five dependent variables: new conviction for any offence; new sexual offence conviction; new non-sexual offence conviction; revocation of release; and reincarceration during follow-up period. The general recidivism measure refers to any return to custody following release. The results of the correlations are reported by category to demonstrate the areas where there is a higher concentration of correlations between the predictor and outcome variables.

As demonstrated in the list of social demographic variables below, there were five age related variables and one release type variable with a significant correlation to recidivism in general.

(1) Assessment age	-0.28672	$p \leq 0.0001$
(2) Age at first conviction	-0.26987	$p \leq 0.0003$
(3) Age at incidence offence	-0.29903	$p \leq 0.0001$

(4) Age at first sex offence	-0.20410	$p \leq 0.0350$
(5) Age at most recent sex offence		
prior to incidence offence	-0.29454	$p \leq 0.0421$
(6) release type	0.30076	$p \leq 0.0001$

The negative correlation between general recidivism and age indicated a decline in the propensity of recidivism with the increase in age. Type of release for incidence offence was recorded as mandatory supervision or full parole. In this instance the significant positive relationship between release type and recidivism indicated that those subjects who had been released on mandatory supervision were more likely to recidivate than those released on full parole.

In the category of criminal history variables, seven factors demonstrated a significant relationship to general recidivism. The list below illustrates the types of significant correlations achieved.

(1) prior conviction for any offence	0.24702	$p \leq 0.0002$
(2) past conviction for assault	0.14529	$p \leq 0.0305$
(3) prior revocation	0.23010	$p \leq 0.0005$
(4) prior incarceration	0.25913	$p \leq 0.0001$
(5) number of prior terms		
of incarceration	0.25087	$p \leq 0.0002$
(6) term incarceration		
identification number	0.23444	$p \leq 0.0004$

(7)number of locations where

previously convicted

0.22186 $p \leq 0.0009$

As the correlations in the list above demonstrate, recidivism was more likely among those subjects with prior conviction for any offence; prior conviction for assault; prior revocation of release; and prior terms of incarceration. There is also the suggestion that the likelihood of recidivism would increase as the number of incarceration terms increase and as the number of previous geographical locations of conviction increase.

Among the variables from the third category, sexual offence pattern, five (below) were significantly correlated to general recidivism.

(1)prior violent sexual offence

conviction

0.19314 $p \leq 0.0039$

(2)prior non-violent sexual

offence conviction

0.14495 $p \leq 0.0255$

(3)number of prior sexual

offence convictions

0.19516 $p \leq 0.0035$

(4)prior incarceration

for a sexual offence

0.17121 $p \leq 0.0106$

(5)number of prior incarceration

terms for a sexual offence

0.15848 $p \leq 0.0181$

The correlations calculated between recidivism and prior sexual offence history demonstrated a greater propensity for recidivism among those subjects with prior convictions for violent and non-violent sexual offenses as well as those with terms of incarceration for sexual offenses. The correlations also indicated an increase in the likelihood of recidivism with the increase in the number of prior convictions and prior incarceration terms for sexual offending.

The results of the correlations between outcome variable and predictor variables not only provide a basis for developing models of prediction, but offer an indication of the type of variables associated to the different outcomes. The following are the results of the correlations found between the predictor variables and three specific outcome variables - any new conviction, new sexual offence conviction and new non-sexual offence conviction. When the results were compared, a distinction between non-sexual recidivism and sexual recidivism was evident.

During the observation period, 51 or 20% of the sample were eventually reconvicted. This represents 17 (33%) with a new sexual offence conviction and 34 (67%) with a new non-sexual offence conviction. Table 2 represents the comparison of correlations found between the outcome variables: new conviction for any offence; new sexual offence conviction; and new non-sexual offence conviction.

INSERT TABLE 2

As demonstrated in the table, there were a number of correlations found that distinguished those reconvicted of a sexual offence and those who were reconvicted of a non-sexual offence.

The first distinction made was among age related factors, where significant correlations were found to new non-sexual offence conviction and not to new sexual offence conviction. The correlations give evidence of a decline in non-sexual reconviction as age increases.

Another distinction made was in the type of admission for incidence offence and sexual reconviction. When dichotomized as either revocation of release or warrant of committal (for incidence offence) the results suggested that revocation of release at incidence offence was associated to new sexual conviction and not to non-sexual reconviction.

Similarly, when type of release for incidence offence was dichotomized as either full parole or mandatory supervision, a significant relationship was found to new sexual offence and not to new non-sexual offence indicating a greater likelihood of those on mandatory supervision to be reconvicted for a sexual offence.

CORRELATION COMPARISON TABLE

<u>PREDICTOR VARIABLES</u>	<u>ANY NEW CONVICTION</u>	<u>NEW SEXUAL OFFENCE CONVICTION</u>	<u>NEW NON-SEXUAL CONVICTION</u>
age at first conviction	-0.24207, p≤ 0.0012		-0.23019, p≤0.0022
age at incidence offence	-0.18750, p≤0.0051		-0.18537, p≤0.0056
age at most recent conviction			-0.21838, p≤0.1359
age at Survey assessment	-0.19411, p≤0.0037		-0.16749, p≤0.0125
age at admission			-0.19300, p≤0.0039
admission type	0.17360, p≤0.0096	0.23754, p≤0.0004	
release type	0.18722, p≤0.0068	0.17433, p≤0.0118	
number prior convictions	0.27115, p≤0.0001	0.16669 p≤0.0129	0.30958, p≤0.0001
prior sex offence conviction	0.16028, p≤0.0168	0.16394, p≤0.0145	
number prior sexual offence conviction	0.16028, p≤0.0168	0.13877, p≤0.0388	
prior violent sexual offence conviction	0.17408, p≤0.0094	0.22400, p≤0.0008	
first conviction being non-violent sex offence	-0.15327, p≤0.0224	-0.21415, p≤0.0013	

TABLE 2

<u>PREDICTOR VARIABLES</u>	<u>ANY NEW CONVICTION</u>	<u>NEW SEXUAL OFFENCE CONVICTION</u>	<u>NEW NON-SEXUAL CONVICTION</u>
prior revo- cation			0.28672, p≤0.0001
number prior revocations	0.29386, p≤0.0001		0.33027, p≤0.0001
prior escape			0.14014, p≤0.0369
number escapes	0.14850, p≤0.0269		0.14442, p≤0.0315
prior term incarceration	0.20856, p≤0.0018		0.21725, p≤0.0011
number prior terms incarceration	0.25095, p≤0.0002	0.16030, p≤0.0168	0.27992, p≤0.0001
term identi- fication number	0.22934, p≤0.0006		0.20873, p≤0.0018
number prior incarceration terms for sexual offence	0.13964, p≤0.0376		
Prior incar- ceration for sex offence		0.16041, p≤0.0168	
number loca- tions previously convicted	0.29386, p≤0.0001		0.26923, p≤0.0001
day parole during time at risk		-0.14732, p≤0.0282	

TABLE 2

The type of correlation between new sexual offence conviction and day parole also demonstrated a difference between those reconvicted for a sexual offence and those reconvicted for a non-sexual offence. The suggestion made was that sexual reconviction is less likely by a subject on day parole.

The results of the correlations to criminal history variables revealed that while prior conviction and terms of incarceration were correlated to the propensity to recidivate in general, non-sexual reconviction was significantly related to more criminal history factors than was sexual reconviction, in terms of prior revocation, escape, convictions, and incarceration. Furthermore, the correlations illustrated in the table suggest an increase in the chance of a non-sexual offence with the increase in the number of prior - revocations, escapes convictions and terms of incarceration. Also showing a contrast between new sexual conviction and new non-sexual conviction was the correlation to the number of geographical locations where previously convicted. As illustrated in the table, non-sexual reconviction was more apt to occur with the increase in the number of geographical locations where previously convicted.

One of the more pronounced distinctions between sexual recidivism and non-sexual recidivism was found in the correlations to prior sexual offence pattern. There were no

significant correlations found between prior sexual offence pattern and new non-sexual offence. The types of correlations found to new conviction for sexual offence suggested that prior violent and non-violent sexual offence convictions as well as the number of prior sexual convictions and terms of incarceration for a sexual offence were influential in the probability of future sexual offending behaviour.

The correlations found between new conviction for any offence and prior sexual offence variables suggest a possible pattern of prior sexual offending among those who recidivate in which there is an initial conviction for a non-violent sexual offence, followed by at least one violent sexual offence.

Other specific recidivism measures were correlated to possible predictor variables. Included in these outcome measures were reincarceration, revocation and time-at-risk variables.

The number of subjects being reincarcerated during the follow-up period was 37 out of 222 or 17%. A number of correlations from social demographic, criminal history and sexual offence pattern were also revealed.

Among social demographic variables, the correlation to age related variables denoted a decline in the propensity to be reincarcerated as age increases. Listed below were the correlations found.

(1)age at first conviction	-0.19176, $p \leq 0.0110$
(2)age at incidence offence	-0.17759, $p \leq 0.0008$
(3)age at Survey assessment	-0.16523, $p \leq 0.0137$

A correlation between release type and reincarceration also demonstrated a greater likelihood of reincarceration among those released on mandatory supervision where, 0.18722, $p \leq 0.0068$.

Several criminal history variables were significantly associated to reincarceration. As demonstrated below in the list of correlation results, the frequency of prior criminal convictions, terms of incarceration and the extent of prior revocations were among those variables most highly correlated to reincarceration.

(1)number of prior convictions	0.24828, $p \leq 0.0002$
(2)prior revocation	0.21602, $p \leq 0.0012$
(3)number of prior revocations	0.29176, $p \leq 0.0001$
(4)number of locations where previously convicted	0.26368, $p \leq 0.0001$
(5)prior incarceration	0.17446, $p \leq 0.0092$
(6)number of prior incarceration terms	0.27788, $p \leq 0.0001$
(7)term incarceration number	0.15884, $p \leq 0.0179$

Among prior sexual offence pattern variables four were found to be significantly correlated to reincarceration.

(1)prior sexual offence conviction	0.14917, $p \leq 0.0263$
(2)prior violent sex offence conviction	0.15386, $p \leq 0.0218$
(3)first conviction being non-violent sex offence	0.16077, $p \leq 0.00165$
(4)non-sexual incidence offence	0.16773, $p \leq 0.0123$

The results demonstrated a trend among those who were reincarcerated in which there is an initial conviction for a non-violent sexual offence, followed by at least one violent sexual offence and a non-sexual incidence offence.

Another outcome variable used in the correlation analysis was revocation of release. During the observation period 31 (13%) were recorded as recidivating with a revocation of release. A number of variables were significantly correlated.

From the social demographic variables, revocation of release was correlated to the following variables:

(1)age at first conviction	-0.18783, $p \leq 0.0128$
(2)age at incidence offence	-0.22743, $p \leq 0.0128$
(3)age at Survey assessment	-0.24012, $p \leq 0.0003$
(4)release type	0.21552, $p \leq 0.0018$

The results of these correlations demonstrated a greater likelihood for a decline in the likelihood of revocation as the subjects' age increased. As well the positive correlation to release type indicated a greater tendency for those on mandatory supervision to be revoked than those on full parole.

Among criminal history variables the correlations calculated suggested that revocation of release was more likely among those subjects with an extensive criminal background.

(1)number of prior convictions	0.18018, $p \leq 0.0071$
(2)prior assault conviction	0.20140, $p \leq 0.0026$
(3)number of prior assault convictions	0.13151, $p \leq 0.0504$
(4)prior incarceration	0.18796, $p \leq 0.0050$
(5)number of prior incarceration terms	0.21433, $p \leq 0.0013$
(6)term incarceration number	0.16452, $p \leq 0.0141$
(7)number of locations where previously convicted	0.24719 , $p \leq 0.0002$

Revocation during follow-up was also significantly associated to sexual offence history. The correlation listed below demonstrate that revocation was more likely among subjects with prior conviction for violent and non-violent sexual offenses including incarceration terms for sexual

offenses. A correlation between type of incidence offence and revocation reveals that revocation was more likely among those convicted of a non-sexual incidence offence.

(1)prior sex offence conviction	0.14313, $p \leq 0.0330$
(2)prior non-violent sex offence conviction	0.13789, $p \leq 0.0401$
(3)prior violent sex offence conviction	0.14398, $p \leq 0.0320$
(4)non-sexual incidence offence	-0.14129, $p \leq 0.0354$
(5)prior incarceration for a sexual offence	0.17142, $p \leq 0.0105$

Included in the correlations between predictive variables and recidivism were those measures involving time at risk. The results of the analysis revealed few significant correlations although there was evidence to suggest a greater tendency for readmission at the beginning of the time-at-risk period among those subjects with a prior non-violent sex offence conviction, ($r=0.38026$, $p \leq 0.0130$) and a greater chance of a new sexual offence conviction at the beginning of time-at-risk for a new sexual offence among those with a prior non-violent sexual offence conviction, ($r=0.38789$, $p \leq 0.0283$). There was also a greater tendency for a revocation of release at the end of the time-at-risk rather than the beginning among those with a prior term of incarceration, ($r=-0.7029$, $p \leq 0.0234$).

The final area of results was the development of prediction models of recidivism for sexual offenders. To achieve this end the statistical multivariate technique, stepwise multiple regression analysis was employed using the outcome measures: general recidivism, new conviction, new sexual offence conviction, new non-sexual offence conviction, revocation of release and reincarceration. Although the proportion of variance expressed by each model was modest and the statistical significance as measured by the F test was low, the findings in this analysis provided interesting trends among those in the sample who recidivated.

The model for general recidivism included the variables: release type for incidence offence; age at incidence offence; number of locations where previously convicted; the number of prior terms of incarceration; and previous sexual offence conviction. The five variables accounted for 23% of the proportion of variance in the dependent variable ($F=4.0653$, $\text{prob} \leq 0.0451$), indicating that the best predictors of general recidivism were among criminal history factors.

The prediction model for new conviction for any offence included four variables which accounted for 29.7% of the proportion of variance in the dependent variable, ($F=2.8996$, $\text{prob} \leq 0.0919$). The order in which they contributed to the model were: number of prior incarceration terms; number

of geographical locations where previously convicted; age at assessment; and age at admission for incidence offence. The variables in this model indicated a greater likelihood of a new conviction based on the extent of criminal history in terms of number of prior incarceration terms and number of locations where previously convicted. As well, given the trend found in the correlation analysis among age related variables, the model also suggested a decline in the likelihood of a new conviction with an increase in age.

The prediction model developed for new sexual offence conviction included the variables number of prior convictions and day parole during follow-up period. Combined, the variables only explained 16.9% of the proportion of variance in the dependent variable, ($F=7.3582$, $p \leq 0.0079$). The indication, however, was a greater tendency for a new sexual offence conviction among those with more prior convictions and who were more likely not on day parole, given the correlation previously reported between new sexual offence conviction and day parole.

The model developed for new non-sexual offence conviction found four contributing variables including: total number of prior convictions; age at admission; number of locations where previously convicted; and number of prior revocations. The proportion of variance accounted for was 23% ($F=5.307$, $p \leq 0.0225$). The model indicated a greater likelihood

of a new non-sexual offence among those with a non-sexual criminal past as well among younger opposed to older offenders.

The model created for the outcome measure reincarceration also included four predictor variables which accounted for almost 22% of the proportion of variance in reincarceration, ($F=3.2095$, $\text{prob} \leq 0.0765$). The order in which they contributed were: number of locations where previously convicted; type of release for incidence offence; total number of prior convictions; and age at incidence offence. Combined, there is the implication that reincarceration was more likely among subjects with a greater frequency of offending. Also, given the type of correlations previously reported between reincarceration and the type of release as well as reincarceration and the age at incidence offence, it is more likely that reincarceration would occur among younger and not older offenders and among those granted mandatory supervision opposed to full parole.

The model for revocation of release during follow-up included the predictor variables: number of locations where previously convicted; age at Survey assessment; prior incarceration for sexual offence; type of release for incidence offence; prior conviction for assault; and prior conviction for non-violent sexual offence. These six contributing variables explained 21.8% of the proportion of

variance in revocation of release, ($F=1.3082$, $\text{prob} \leq 0.2545$). The model focused on types of prior conviction which included non-violent sex offenses and assault and prior terms of incarceration for sexual offenses. Once again it is noted that revocation was more likely among younger subjects than older as well as among those released on mandatory supervision rather than full parole.

It should also be noted that the outcome measures involving time-at-risk variables did not provide models of recidivism to a level of significance.

VDISCUSSION AND CONCLUSION

The overall purpose of this study was to determine variables of sex offender recidivism based on social and criminal data. Six models of recidivism resulted based on the six definitions of recidivism used. Each model contained a number of predictor variables accounting for only a small proportion of the variance at comparatively low levels of significance. Apart from the model developed for sexual recidivism, each model contained similar predictor factors. There were three variables consistently present in each of these prediction model. The first was age which implied a decline in the occurrence of recidivism as the age of the subject increased. The second was the extent of criminal history which denoted a greater likelihood of recidivism with the increase in the number of prior convictions. The third was the number of locations where previously convicted which not only suggested a greater likelihood of recidivism with the increase in number of different conviction locations but also pointed to some form of migrating behaviour among the sample.

An interesting finding in the model for new sexual offence conviction was that although sexual recidivism was significantly correlated to a number of predictor variables including prior sexual offence history, the model developed

contained only two variables, both of which were not related to prior sexual offending. The low percentage of variance explained by the model (16.9%) suggested that, among this sample, those who continued to offend sexually shared an even smaller number of common characteristics than those who recidivated with a non-sexual offence.

The results of the models demonstrated the complexities involved in predicting future criminal behaviour, especially among sexual offenders. There were a number of factors which correlated to recidivism yet when regressed into models of prediction only a small proportion of the variance could be explained. The correlations found between predictor and outcome variables did, however, provide some interesting tendencies among the sample.

One interesting finding of the analysis was that mental health variables did not correlate to the outcome variables of recidivism, despite the fact that CMOs in the Mental Health Survey had identified each subject as being at risk due to a serious sexual dysfunction. What is questionable is the basis for those informal predictions of future behaviour when statistically there were no significant correlations found between identified mental health problems and recidivism nor between types of mental health intervention and recidivism. These results do not by any means dispute the relevance of mental health factors, rather they suggest the

need for a more rigorous search into the factors related to the psychological/ physical make-up of the sexual offender. The fact that there were no correlations found between mental health predictor variables and recidivism does not render the factors of mental health useless. It may simply indicate that the types of factors available for this research were not related to the recidivism criteria. The results of the mental health data may also support the position put forth by Robinson (1988) that "factors that appear to operate in a particular sex offender's case may not help explain why another individual offends." (p.13) Perhaps mental health variables such as those used in this research can not produce significant enough results to be correlated to recidivism yet can provide insight into the characteristics of certain sexual offenders identified by CMOs as being at risk in society.

One finding of the mental health data was the possibility of a relationship between serious sexual dysfunction and serious substance abuse. As a primary and secondary mental health problem, serious sexual dysfunction was identified in 89.2% of the total sample population while serious substance abuse, the second most prevalent problem, was identified in 26.1%. The percentage of subjects listed with both types of mental health problems draw a possible connection between serious sexual dysfunction and substance abuse as indicated in other research (Tracey et al., 1983;

Frisbie, 1962).

Another interesting finding was the relationship between type of release for incidence offence and recidivism. Throughout the observation period the number on mandatory supervision remained at a higher rate than the number on full parole. What was indicated from the type of release was that among this sample of known sexual offenders, few had been eligible for early release on parole and therefore released at a later date on mandatory supervision. Parole can be denied for several reasons such as, gravity of the offence, behaviour while incarcerated or perceived risk to society if released. Since the subjects were more often given mandatory supervision, there was an implied risk about the sample. The fact that, mandatory supervision was indicated as a predictor of recidivism confirms not only the decision not to grant parole but also supports the assessment made by CMOs about perceived risk to society.

Other reported correlations to non-sexual recidivism were age related variables. The overall conclusion was that the continuation of non-sexual offending declined as age increased. When age at first conviction, age at incidence offence and age at new admission were compared, there was an obvious pattern. The average age at first conviction offence was 22 years, at incidence offence was 34 years and at new admission was 32 years. Among this sample it would appear

that the ceiling age for continued non-sexual offending was between 32 and 34 years. These results are consistent with other research in the area. For example, the J.J. Peters Institute (1980) reported a greater likelihood of continued offending among younger offenders (18-20 years) than among older offenders (26-34 years).

Among criminal history variables a distinction was reported between the correlations to sexual recidivism and the correlations to non-sexual recidivism. One of the main findings, was that while sexual recidivists appeared to have a greater sexual offence history, non-sexual recidivists appeared to have a greater history of general offending. This suggested two separate trends of criminal offending among this sample. The first, among sexual recidivists, is the specification of offending behaviour in which sexual offending continues. The second, among those with a new non-sexual offence conviction, is the indication of a general criminal career where sexual offending, as indicated in all the criminal histories of the sample, is only one aspect of criminal behaviour. This latter finding, is consistent with other research (Grunfield and Noriek, 1986; Frisbie, 1969; Christiansen et al., 1965).

There were other tendencies specific to sexual recidivism which were shown in the analysis. In comparing type of first conviction (as sexual or non-sexual) with type

of incidence offence conviction there appeared to be a slight increase in sexual offending between the two periods. Although time between the two periods of offending was not defined in the research, it appears that sexual offending is less an isolated form of offending behaviour and may continue over time. The decline in the number of sexual offence convictions for new admission offence does not necessarily indicate that sexual offending has discontinued, but may reflect the low rate of new convictions for any new admission.

During the follow-up period, a total of 42.3% of the sample were given day parole. The results of the correlational data indicated that among those who recidivated, few were on day parole. Furthermore, the results indicated that among those who recidivated with a sexual offence a lesser number had been on day parole at the time of the new admission offence. These results are important to those making decisions about granting day parole and concerned with the potential risk sexual offenders pose to society.

The results also demonstrated a greater tendency for sexual recidivists to have more prior non-violent sexual offence convictions. A similar finding was reported in other research where there was a greater prevalence of non-violent sexual offences than violent. (Gray and Mohr, 1965; J.J. Peters Institute, 1980; Christiansen et al., 1965). It has also been reported in other research that a history of non-

violent sexual offending can develop into more violent types of sexual offending (Quinsy, 1981), a concern which can not be over looked.

One of the more unique findings from the results was the proposition that the sexual offenders in this study appeared to display a sort of migrating type of behaviour and/or live a form of transient lifestyle in which movement from one region to the next may be the result of offending or a precursor to new offending. In addition to this is the fact that the majority of the sample were single, allowing for greater geographical mobility unhindered by a spouse or family. Further exploration in this area would be beneficial for discovering new aspects of the offending pattern of sexual offenders.

There were a number of limitations to the research with respect to the sample used and the available data which affect the generalizability of the results. In terms of the available data, there was an emphasis on criminological factors although a few mental health variables were included. As a result, conclusions about social and/or psychological factors, other than those used in the research can not be accurately made. In terms of the sample population, the results are restricted to federal sex offenders under the jurisdiction of and assessed by Case Management Officers as being at risk for reoffending.

CONCLUSIONS

The results of this research did not provide significant models of prediction for sexual offender recidivism. What can be concluded is that sexual offenders form a complex group of offenders with too few common characteristics to make possible a significant prediction model of recidivism. The results do, however, offer a number of trends and interesting tendencies about the sample in general, and about sexual and non-sexual recidivists in particular. The types of associations discovered among the independent variables and between predictor and outcome variables indicated various areas for further research such as mental health, criminal history, and the migrant behaviour of sexual offenders. In terms of a distinction in offending behaviour between sexual and non-sexual recidivists, the results point to two main factors. The first is the extent of and type of prior offending behaviour. Among those who recidivated with a sexual offence, there appeared to be a greater sexual offence history compared to those who recidivated with a non-sexual offence who reportedly have a greater non-sexual offence history. The second distinguishing factor was age. Among those who recidivated with a non-sexual offence there appears to be a ceiling age of 32 or 34 years, after which reoffending appeared to decline. In contrast, age does not appear to affect the continuation of sexual

offending.

The results of this research provide support for past research in the area. It also touches on new areas of concern with respect to trends between sexual and non-sexual offenders which have ultimate affect on sexual offender treatment and public safety.

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APPENDIX A: Literature Review

LITERATURE REVIEW

AUTHOR	POPULATION	PERIOD AT RISK	RECIDIVISM RATE	VARIABLES	ASSOCIATION OR RESULTS
Tracy et al. 1983.	82 correctional sex offenders.	5 years	32 Reoffended -17 with sex offence -15 with non-sex offence.	Prior Sex Offence History Alcoholism	82% of repeat sex offenders had prior sex offence. 60% of repeat non-sex offenders had prior sex offence. 18% of non-repeat offenders had prior sex offence. 53% of repeat sex offenders 66% of repeat non-sex offender 38% of non-repeat offender.
Sturgeon and Taylor 1980.	260 Mental Disorder sex offender from Atascadero.(Group A, N=180 with positive recommendation.Group B, N=80 with negative recommendation) 122 prison cohort.	5 years	29% of total recidivated <u>Group A</u> 12% sex offence, 8% persons offence, 9% property offence. <u>Group B</u> 24% sex offence, 11% persons offence, 6% property offence.	Prior Sexual Offence History	44% with prior sex offence only recidivated compared to 22% with non-sex offence record. Among those with B recommendation 36% with prior sexual offence only recidivated while only 9% of those with A recommendation recidivated.

AUTHOR	POPULATION	PERIOD AT RISK	RECIDIVISM RATE	VARIABLES	ASSOCIATION OR RESULTS
Sturgeon Taylor 1980 continued)			<u>Prison Cohort</u> 25% sex offence, 12% persons offence, 24% property offence.		14% of prison group with prior sex off. had new sex off. 34% of prison group with prior non-sex off. recidivated with same.
				Prior Non-Sex Offence	Twice as many (39%) with non- sex offence recidivated com- pared to those with prior sex offence (18%)
				Same Offence on Record	30% of Group B with prior sex offence only had new sex offence compared to 10% with prior non-sex offence.
					20% of Gr. A & B with prior non- sex offence recid- ivated with same.
					10% of Gr. A & B with prior non- sex offence recid- ivated with new sex offence.
					24% in prison group with property off. history recidivated with same compared to 6% in Group B.

AUTHOR	POPULATION	PERIOD AT RISK	RECIDIVISM RATE	VARIABLES	ASSOCIATION OR RESULTS
Sturgeon Taylor 1980 (continued)				General Criminal Offence History	39% with non-sex offence history recidivated compared to 18% with prior sex offence.
				Age	88% of younger rape recidivists in the prison group were less than 30, compared to 68% in the treated group.
Gibbens, Soothill Way 1981	56 sex off. convicted 1951 65 sex off. convicted 1961	24 years 15 years	new sex offence +19% 1951 -5% 1961	Prior Record	47% of those with two prior convictions of any kind recidivated with sex or violence offence.
Soothill Gibbens 1978.	114 Incest (father/ daughter) offenders convicted 1961. 41 Incest (siblings) convicted 1961.	24 years	88% of fathers (4% sex) 51% of siblings	Prior Record Age Reoffence Type	Of the recidivists 11% of fathers had a prior record 27% of siblings had a prior record. Recidivism decrease with age. 12% of fathers over 40 years recidivated. Siblings had more general reoffending (54% for property, 15% violence off.

AUTHOR	POPULATION	PERIOD AT RISK	RECIDIVISM RATE	VARIABLES	ASSOCIATION OR RESULTS
Groth Longo McFadin 1982 (continued)			untreated group. 1.4 sex offence for child molesters in treated group and 2 in untreated group.		treated group and 16 years for untreated group. -among child molesters 13 and 35 years for treated group and 16 and 31 for untreated group.
Grunfield Noriek 1986.	541 correctional sex offenders.	13 years	12.8% reconvicted (21.7% of rapists, 10% of child molesters, 14.5% charged with obscenity, 3.7% other)	Same Offence Conviction on Record Rape Prior Conviction Type	9.6% of rapists reconvicted for same. 6.8% of child molesters reconvicted for same. 7.3% obscenity offenders reconvicted for same. 1/5 rapists reoffended. -10% of rapists had conviction for for violent off. prior to first sexual offence and 16% had a violence off. subsequent to first sex. offence. -1/3 of sample had conviction prior to first sexual offence, while 1/4

AUTHOR	POPULATION	PERIOD AT RISK	RECIDIVISM RATE	VARIABLES	ASSOCIATION OR RESULTS
Grunfield Noriek 1986 (continued)					had profit off. conviction subsequent to first sexual offence.
Fitch 1962.	139 correctional sex off.	13 years	35 recommitted (40.3% of homosexual and 12.9% of heterosexual pedophiles)	Same Offence on Record Prior non-sex Offence Record Prior Sex Offence Extent of Prior Record Age at First conviction	Both groups recidivated proportionately to previous behaviour. Fewer new convictions among those with prior non-sexual offences. 14 of sexual recidivists had prior sex off. compared to 6 who had only one prior sex offence. ($\chi^2=22.17, df2, p=.001$) Recidivists had more previous conviction for sex offence and same number of prior convictions for non-sexual offences as those who did not recidivate. Age at first conviction was earlier among those who reoffend.

AUTHOR	POPULATION	PERIOD AT RISK	RECIDIVISM RATE	VARIABLES	ASSOCIATION OR RESULTS
Nagayama-Hall Proctor 1987.	342 non-psychiatric sex offenders.	5 years post evaluation	139 re-arrests (49 sex offences including 23 offences against adults, 63 against children, 4 against both; 49 non-sex offences; and 41 for both.	Prior Sex Offence Against Adults Prior Sex Offence Against Children	Significant relationship to rearrest for same $R=.35$, $F(1,340)=48.78$, $p<.0001$; and rearrest for non-sexual violent offence, $R=.39$, $F(1,340)=59.15$, $p<.0001$. Significant relationship to rearrest for same $R=.12$, $F(1,340)=5.16$, $p<.03$.
Romero Williams 1983.	148 treated sex offend. 83 probation sex offend.	10 years	13.6% of treated group 7.2% of probation group.	Prior Record Psychotherapy	38% of recidivists had two or more prior sex arrests Those given probation only opposed to probation and psychotherapy had far fewer subsequent arrests.

AUTHOR	POPULATION	PERIOD AT RISK	RECIDIVISM RATE	VARIABLES	ASSOCIATION OR RESULTS
Christiansen et al. 1965.	2934 correc-tional sex offenders	12-24 years	24.3% recidivated (52% property offence and 43% sex off.)	Frequency Age Type of offence Prior Record Prior Sex offence	Recidivism more likely by first two years. Likelihood of new sex offence increases with age, while committing other types of offences decreases. Highest among indecency toward women (28.9%) and exhibitionism, 30.8% Likelihood of recidivating to the same offence type is greatest in the case of indecency toward women 16.4%, exhibitionism 12.2% and indecency toward males 8.7%. Recidivism is twice as high for those with a prior record (38.6% compared to 18.6% of first time offenders). General recidivism was higher among those with sex offence in connection to other forms of criminal behaviour

AUTHOR	POPULATION	PERIOD AT RISK	RECIDIVISM RATE	VARIABLES	ASSOCIATION OR RESULTS
Christiansen et al. 1965 (continued)					rather than those with an exclusive sexual offence history. Recidivating to sexual crime is greatest among those with exclusive sex offence history.
Frisbie 1969	887 sex -Atascadero mental disorder sex offenders; (discharged after inde- terminate sentence and those not given inde- terminate sentence) -paroled sex offenders -non-insti- tutional sex offenders.	3.5 yrs.	336 Total Recidivists -245 non- sex off.	Type of Disposi- tion Given Prior Juvenile Record Prior Adult Record Age	46.5% of non-institu- tional reoffended 44.2% of paroled sex offenders 28.6% of sex off. from Atascadero. 34.5% Sex off. given indeterminate sentence. 84 (34%) of rec- idivists had adult records. 208 (85%) of recidivists had adult record. Statistically sig- nificant median age of 27 years among recidivists (x^2 , $p < .001$). Average age at first conviction was 16 years.

AUTHOR	POPULATION	PERIOD AT RISK	RECIDIVISM RATE	VARIABLES	ASSOCIATION OR RESULTS
Frisbie 1969 (continued)				Type of Offence	Rapists more likely to recidivate than pedophiles (χ^2 , $p < .001$).
					Of the 245 non- sexual recidivists, 151 were re- arrested for same offence type as prior adult non- sexual arrests.
				Frequency	Average period before relapse was 8 months. Relapse more likely during year one (71%) and year two (22%) with a decline in subsequent years.
			91 with sex off.	Frequency of recidivism	relapse more likely during year one (77%) followed by a decline in year two (22%) and three (5.5%)
				Disposition	Sex offenders discharged from Atascadero (9.5%) and those given a non-institutional sentence (10.1%) were less likely to recidivate than

AUTHOR	POPULATION	PERIOD AT RISK	RECIDIVISM RATE	VARIABLES	ASSOCIATION OR RESULTS
Frisbie 1969 (continued)					sex offenders given parole (16.9%) or discharged after indeterminate sen- tence (24.4%)
				Prior Juvenile Record	29 recidivists had a juvenile record.
				Prior Adult Record	62 of the sex recidivists had an adult record.
				General Criminal Record	Sex recidivists with a general criminal history were more likely to also commit property offences and less likely to commit alcohol related offenses (significant at .10 level)
				Prior Sexual Offence	46% of the sex recidivists had a prior sexual off.
				Prior Non-Sex Record	68% with a non- sexual record recidivated with a sex off.
				Age	Average age at first conviction was 15 years.
				Victim	Recidivists usually maintain the same choice of victim. Where there was a

AUTHOR	POPULATION	PERIOD AT RISK	RECIDIVISM RATE	VARIABLES	ASSOCIATION OR RESULTS
					change, -61% of the 91 sex recidivists chose an older victim; 26% chose a stranger while 55% maintained the same relatedness to the victim.
Joseph Peters Institute 1980	231 sex offenders (147 in psychotherapy and 84 on probation only)	10 years	13.6% of treated group rearrested for sex offence 7.2% of probation group rearrested for sex offence.	Sexual Offence Record Exhibitionism Marital Age	7.9% with prior adult sex offence arrests between 0 and .3 per year had a new sex offence, while 26.2% with prior adult sex offence arrests between .31 and 1.39 per year had a new sex offence. of those who exposed themselves two or more times 58.3% had a new sex offence. Single offenders were more likely to recidivate (66%) than divorced offenders (22%) Younger offenders were more likely to reoffend (75% of the 18 to 20 year olds recid-

AUTHOR	POPULATION	PERIOD AT RISK	RECIDIVISM RATE	VARIABLES	ASSOCIATION OR RESULTS
					ivated compared to 50% of those 26 to 34 year olds.
Barbaree Marshall 1988.	68 treated child molesters 58 untreated child molesters 43 child molesters who denied guilt 1 psychotic child molester.	up to four years	20.7% re- offended (14% who had denied guilt; 13% of treated group; 34% untreated group; 21.7% untreated incest off. 42.8% of untreated non-familial child molester.	Sexual Deviance (force number of victims, inter- course)	significant predictor to recidivism, $F(1.31) = 7.21$, $p < .02$). significant predictor of reoffence, $F(91.3)$ $= 9.62$, $p < .005$. Together with Social Status and Offender Age, Sexual deviance explained 30% of the variance for the outcome measure number of reoffences ($F(91.3) =$ 9.62 , $p < .005$).

APPENDIX B: Coding Guide

CODING GUIDE

for

**PREDICTING RECIDIVISM
AMONG FEDERAL SEXUAL OFFENDERS**

APRIL 16, 1989

**RESEARCH BRANCH
CORRECTIONAL SERVICES CANADA**

SARINA RANDALL

MENTAL DISORDER SURVEY (MDS.DAT)

<u>COLUMN</u>	<u>KEYWORD</u>	<u>DESCRIPTORS</u>
1-3	SN	Subject Number
5-11	FPS	Finger print serial #
13-24	NAME	Offender's last name and first initial
26-33	DOB	Offender's date of birth (ddmmyyyy)
35-37	ASSPLCE	Institution or office where the offender was assessed (see code sheet attached)
39	STATUS	The current status of the offender 0. not stated 1. day parole 2. full parole 3. mandatory supervision 4. UTA 5. under suspension 6. not released
41	DISNUM	Number of mental health disorders identified by case management officer.
42-43	DISR1	The first most serious mental health disorder identified by case management officers 00. none identified 01. suicidal 02. seriously depressed 03. thought disordered 04. socially and/or mentally incompetent 05. violence/aggression problem 06. serious sexual dysfunction 07. substance abuse problem

<u>COLUMN</u>	<u>KEYWORD</u>	<u>DESCRIPTORS</u>
	DISR1	08. controlled thought disorder and/or affective disorder 09. serious induced psychological deterioration 10. other
44-45	DISR2	The second most serious mental health disorder identified by case management officer (see codes above)
46-47	DISR3	The third most serious mental health disorder identified by case management officer (see codes above)
48-49	DISR4	The forth most serious mental health disorder identified by case management officer (see codes above)
50-51	DISR5	The fifth most serious mental health disorder identified by case management officer (see codes above)
52	PREMHI	Offender's previous involvement with mental health intervention/treatment to deal with identified problem area 0. no 1. yes 2. don't know 3. not stated
53-54	PRETYPE1	The type of intervention/treatment the offender was involved with previously 00. none 01. psychological counselling (one to one)

COLUMNKEYWORDDESCRIPTORS

- 02. Psychological counselling
(group)
- 03. sexual response control
program
- 04. alcoholic anonymous
- 05. aims job development
program
- 06. native employment or
education program
- 07. round like development
- 08. alcohol and/or drug
abuse program
- 09. phoenix program
- 10. parent abusers program
(sexual/physical)
- 11. life skills program
- 12. medicalization
treatment or therapy
- 13. special sexual deviancy
treatment
- 14. anger management
program
- 15. ADEC program
- 16. family counselling
- 17. sexual awareness
program
- 18. assertiveness training
program
- 19. sexual offender
treatment program
- 20. CLSC-Repentigny
- 21. STS Kingston
- 22. referral/assessment
only
- 23. increased mental health
services in community
- 24. sex offender program in
French
- 25. treatment would be a
waste of time
- 26. hot line for sex
offenders
- 99. not stated

55-56

PRETYPE2

A second type of
intervention/
treatment the offender was
involved in previously
(see codes above)

COLUMNKEYWORDDESCRIPTORS

57

PRESMHI

Offender's current involvement with mental health intervention/treatment to deal with identified problem areas

- 0. no
- 1. yes
- 2. don't know
- 3. not stated

58-59

PRESTYP1

The type of intervention/treatment the offender is currently involved in (see pretype1 codes)

60-61

PRESTYP2

A second type of intervention/treatment the offender is currently involved in (see pretype1 codes)

62-63

TREATREC

The intervention/treatment needed currently yet not available (see pretype1 codes)

64

AGREE

Offender's willingness to participate in the program

- 0. not stated
- 1. would readily agree to participate
- 2. would agree only if directed to do so by the NPB or case management officer
- 3. would not agree to participate under any circumstance
- 4. not enough information to make this judgement

66-67

COMMENT

A code representing the comment made by case management officer

- 01. no comment
- 02. lack of treatment programs for sex offenders

COLUMNKEYWORDDESCRIPTORS

- 03. long time sex offence
may not be sincere
about treatment
- 04. client co-op. fully and
part. well in program
- 05. client is uncooperative
attends due to release
conditions
- 06. offender's needs are
being met by program
- 07. offender was a victim of
physical/sexual abuse as
a child
- 08. offender wants
treatment
- 09. not enough french
language sex off.
programs
- 10. sex offence blamed on
substance abuse
- 11. sex offence blamed on
depression
- 12. sex offence blamed on
victim/other
- 13. subject is a repeat
offender
- 14. sex off. never
addressed
in the past
- 15. offender is high risk
for reoffending
- 16. offender needs
programming
- 17. not enough evaluation
done on current
programs
- 18. need more funding for
programs

69-76

ASSDATE

The date on which the
offender was assessed
(ddmmyyyy)

OFFICE OR INSTITUTION CODES FOR MDS.DAT

474. PORTSMOUTH
475. OTTAWA
481. KEELE CENTER
482. TORONTO-YORK
483. SCARBOROUGH
484. BARRIE
485. ETOBICOKE
487. SUDBURY
488. TIMMINS
489. SAULT-STE-MARIE
492. LONDON
493. GUELPH
494. HAMILTON
495. WINDSOR
496. CAMBELLFORD
498. BRANTFORD
505. OSBOURNE
511. ROCKWOOD
520. SASKATCHEWAN
521. SASK FARM ANNEX
525. OSKONA CENTER
536. GRIERSON
551. WINNIPEG
552. BRANDON
560. REGINA
561. PRINCE ALBERT
572. CALGARY
573. RED DEER
575. THOMPSON
576. YELLOW KNIFE
577. KENORE
578. THUNDER BAY
580. EDMONTON
581. EDMONTON DISTRICT
585. EDMONTON RURAL
835. SUMAS CENTER
847. ELBOW LAKE
848. FERNDAL
881. VANCOUVER
882. VICTORIA
883. ABBOTTSFORD
884. PRINCE GEORGE
886. KAMLOOPS
887. VERNON
889. DAWSON CREEK
891. NEW WESTMINSTER

CRIMINAL HISTORY (CPIC1.DAT)

<u>COLUMN</u>	<u>KEYWORD</u>	<u>DESCRIPTORS</u>
1-3	SN	Subject number.
5-11	FPS	Finger print serial #.
12-19	CVDATE1	Date of first conviction. (ddmmyyyy)
20	INCAR	Previous incarceration prior to current term. 0. no 1. yes
21-22	NINCAR	Number of times previously incarcerated.
23	ESCAPE	Previous escapes. 0. no 1. yes
24-25	NESCAPE	Number of times previously escaped.
26	REVOKE	Previous probation/parole revocations. 0. no 1. yes
27-28	NREVOKE	Number of times previously revoked.
29	ASSAULT	Previous convictions for assault. 0. no 1. yes
30-31	NASSAULT	Number of previous convictions for assault.

<u>COLUMN</u>	<u>KEYWORD</u>	<u>DESCRIPTORS</u>
32	VIOSEX	Previous convictions for violent sexual assault. (rape, attempted rape, indecent assault or sexual assault or aggravated sexual assault) 0. no 1. yes
33-34	NVIOSEX	Number of previous convictions for violent sexual assault
35	SEXOFF	Previous conviction for a non-violent sex offence (incest, indecent acts) 0. no 1. yes
36-37	NSEXOFF	Number of previous convictions for non-violent sex offence
38-39	CONTOT	Total number of previous convictions
CURRENT HISTORY:		
41	CURSEX	Current sex offence 0. no 1. yes
42-43	TYPEOFF1	Type of first offence (see code sheet attached)
44-45	CVOFF1	Number of convictions for first offence
46-47	TYPEOFF2	Type of second offence (see code sheet attached)
48-49	CVOFF2	Number of convictions for second offence

<u>COLUMN</u>	<u>KEYWORD</u>	<u>DESCRIPTORS</u>
50-51	TYPEOFF3	Type of third offence (see code sheet attached)
52-53	CVOFF3	Number of convictions for third offence
54-55	CVTOT	Total number of convictions for current term
56-63	CVDATE2	Date of current conviction (ddmmyyyy).
64-65	AGGYR	Aggregate sentence for current term (years) (Where sentence cannot be reduced to months and years put 99.)
66-67	AGGMON	Aggregate sentence for current term (months)
68-69	DISP	Disposition for current term (see codes sheet attached)
70-72	LOCATION	Location of conviction for current term.
73-74	NUMLOC	Number of different locations where convicted.
75-76	SEXLOC	Number of different locations where convicted for a sex offence.

SEX SPECIFIC HISTORY

(CPJC2.DAT)

(PRIOR TO INCIDENCE
OFFENCE)

<u>COLUMN</u>	<u>KEYWORD</u>	<u>DESCRIPTORS</u>
1-3	SN	Subject number
5-11	FPS	Finger print serial number
12	PRECVSEX	Previous conviction for sex offence 0. no 1.yes
13-14	CVSEXX	Total number of previous convictions for sex offence
15	INSEX	Previous incarceration for sex offence 0. no 1. yes
16-17	INSEXX	Total number of previous incarceration terms for sex offence
18	PROBSEX	Previous probation terms for sex offence 0. no 1. yes
19	PROBSEXX	Total number of previous probation terms for sex offence
20-27	SEXDAT1	Date of first sex offence conviction (ddmmyyyy)
28-29	SEXTYP1	Type of first sex offence (see code sheet attached)

<u>COLUMN</u>	<u>KEYWORD</u>	<u>DESCRIPTORS</u>
30-31	SEXDIS1	Disposition for first sex offence conviction (see codes sheet attached)
32-39	SEXDAT2	Date of conviction for most recent sex offence (other than the first sex offence - leave blank if missing)

IF MORE THAN ONE SEX OFFENCE FOR MOST RECENT CONVICTION FOR SEX OFFENCE:

40-41	SEXOFF1	Type of sex offence for most serious recent conviction ie. largest sentence (see code sheet attached)
42-43	SEXOFF2	Type of sex offence for second most serious recent conviction (see code sheet attached)
44-45	DIS1	Disposition for most recent conviction for sex offence (see code sheet attached)
46-47	AGGYR1	Aggregate sentence for most recent sex offence conviction (year)
48-49	AGGMO1	Aggregate sentence for most recent sex offence conviction (month)

<u>COLUMN</u>	<u>KEYWORD</u>	<u>DESCRIPTORS</u>
50	DSO	Designation as a dangerous sex offender 0. no 1. yes
51-58	DSODATE	Date when designated as DSO (ddmmyyyy)
59	OFFWD	Previous sex offence(s) withdrawn 0. no 1. yes
60-61	NUMWD	Number of previous sex offences withdrawn
62-63	TYPWD	Most recent type of sex offence withdrawn (see code sheet attached)
64-71	WDDATE	Date in which most recent sex offence was withdrawn
72-74	LOCAT1	Location of first sex offence conviction(s)
75-77	LOCAT2	Location of second sex offence conviction(s)
78-80	LOCAT3	Location of most recent sex offence conviction(s) (the last conviction for a sex offence)

CRIMINAL HISTORY POST CURRENT TERM (CPIC3.DAT)

<u>COLUMN</u>	<u>KEYWORD</u>	<u>DESCRIPTORS</u>
1-3	SN	Subject number
5-11	FPS	Finger print serial#
13-20	RELDATE	Date of release post current term admission (ddmmyyyy)
21	RELTYPE	Type of release post current term admission 0. not released/under suspension 1. UTA 2. day parole 3. full parole 4. mandatory supervision 9. unavailable
23	REINCAR	Reincarcerated post current term (post assessment) 0. no 1. yes
24	NCV	Convicted post current term 0. no 1. yes
25-26	NUMNCV	Total number of new convictions.
27-28	TYPE1NCV	First type of offence in first new conviction (see code sheet attached)
29-30	TYPE2NCV	Second type of offence in first new conviction (see code sheet attached)
31-32	TYPE3NCV	Third type of offence in first new conviction (see code sheet attached)

<u>COLUMN</u>	<u>KEYWORD</u>	<u>DESCRIPTORS</u>
33-40	NCVDATE	Date of first new conviction (ddmmyyyy)
42	REVOKED	Revocation post current term 0. no 1. yes
43	REVTYPE	Type of revocation 0. none 1. Day parole 2. Full parole 3. M a n d a t o r y Supervision
44-51	REVDATE	Date of revocation post current term (ddmmyyyy)
52	FORFEITR	Release forfeited post current term 0. no 1. yes
53-60	FORDATER	Date of release forfeiture post current term (ddmmyyyy)
62	NEWSEX	New sex offence conviction 0. no 1. yes
63-64	NSEXTYP1	First type of new sex offence (see code sheet attached)
65-66 attached)	NSEXTYP2	Second type of new sex offence (see code set

<u>COLUMN</u>	<u>KEYWORD</u>	<u>DESCRIPTORS</u>
67-68 attached)	NSEXTYP3	Third type of new sex offence (see code set)
69-71	LOCNSEX	Location for new sex offence (see code sheet attached)
72	NCVSEX	Number of convictions for new sex offence.
73-80	NCVSEXDT	Date for new sex conviction (ddmmyyyy)

OFFENDER INFORMATION SYSTEM (OIS1.DAT)

<u>COLUMN</u>	<u>KEYWORD</u>	<u>DESCRIPTORS</u>
1-3	SN	Subject Number
5-11	FPS	Finger print serial number.
13	TERMID	A sequential number identifying a specific federal term record related to an offender.
15-22	BIRTH	Date of birth. (YYYYMMDD)
24	RACE	Race of offender. 0. Not stated 1. Caucasian 2. North American Indian Status 3. North American Indian Non-Status 4. North American Indian Not Stated 5. Metis 6. Inuit 7. Asiatic-Mongoloid 8. Black-Negroid 9. Other
25	MARITAL	Marital status 0. Not stated 1. Single 2. Married 3. Common Law 4. Widow 5. Separated 6. Divorced
26	LANG	First language of offender 0. Not stated 1. English 2. French 3. Bilingual (Eng.&Fre.) 4. Other

<u>COLUMN</u>	<u>KEYWORD</u>	<u>DESCRIPTORS</u>
27-31	AGGSEN	Aggregate sentence (days) up to and including current term.
33-37	MAJOFF	A code representing the offence for which the offender was given the longest sentence during current term incarceration. (SEE CODE SHEET ATTACHED)
39-40	ADMTYPE	Type of admission for current term. 01. Warrant of Committal 02. Transfer from Provincial 03. Parole Revocation 04. Parole Forfeiture 05. Par. Rev. w/Ind. Offence 06. M.S Revocation 07. M.S Forfeiture 08. M.S Rev. w/Ind Offence 09. War. of Comm. While on M.S 10. War. of Comm. While on Parole
42-49	ADMDATE	Date of admission for current term. (yyyymmdd)
51-53	ADMINST	The institution to which the offender was admitted (for current term). (SEE CODE SHEET ATTACHED)
55	DAYPAR	Day parole granted during or post current term.
57-64	DPDATE	Date granted day parole. (yyyymmdd)

COLUMNKEYWORDDESCRIPTORS

66-73

RELDATER

The date when the
offender was
released following
current
term admission.
(yyyymmdd)

75-76

RELYPER

Release type following
current term admission

- 00. Not Released
- 01. Expiration
- 02. Full Parole
- 03. Min. Parole
(inactive)
- 04. Clemency
- 05. Court Order/Sent.
Quashed
- 06. Death
- 07. TRF To Pro/Fed
- 08. MS Continued
- 09. MS
- 10 Parole COntinued
- 11. WED/Refused MS
- 12. Warrant Expiry Date
- 13. Royal Preogative
of Mercy
- 15. C Order/Sent
Reduced
- 16. Not Rel. Det. Ord.
- 17. M.S Residency Req.
- 18. One Chance MS
- 99. Other

78-80

RELINST

The instituion in which
the offender was
released from (for
current term or
post current term.
(SEE CODE SHEET
ATTACHED)

(CRIMINAL HISTORY POST CURRENT DATE DATA) OIS2.DAT

<u>COLUMN</u>	<u>KEYWORD</u>	<u>DESCRIPTORS</u>
1-3	SN	Subject number.
5-11	FPS	finger print serial number.
13	NTERMID	A number indicating the present term of incarceration.
15	REVNEW	Release revoked post current period. 0. no 1. yes
17	REVNWTYP	Type of release revoked post current period. 0. none 1. day parole 2. full parole 3. mandatory supervision
19 -26	REVNW DAT	Date in which release was revoked post current period. (yyyymmdd)
28	NWCON	New conviction post current term release. 0. no 1. yes
30	TNNWCON	Total number of new convictions post current term release.
32-39	NADMDATE	Date of admission post current period. (yyyymmdd)
41-42	NADMTYPE	Type of admission post current term.

<u>COLUMN</u>	<u>KEYWORD</u>	<u>DESCRIPTORS</u>
44-48	NMAJOFF1	A sequential number indicating the offence for which the offender received the largest sentence.
50	RSEX	A new sex offence conviction post current term release. 0. no 1. yes
52 offence conviction	NRSEX	Total number of new sex post current term release.
54-58	NSEXTYP	A sequential number indicating the sex offence for which the offender received the largest sentence post current period.
60-67	DATSEX	The date of first conviction for a new sex offence post current term release (yyyymmdd)

OFFENCE CODES FOR ALL CPIC.DAT

10. MANSLAUGHTER
11. HOMICIDE
12. ATTEMPTED HOMICIDE
13. ACCESSORY TO MURDER
14. CHOKING
15. THREATS TO KILL
16. ARSON
17. INDECENT ASSAULT FEMALE
18. INDECENT ASSAULT MALE
19. ATTEMPTED SEXUAL ASSAULT
20. SEX ASSAULT/RAPE
21. GROSS INDECENCY
22. INDECENT EXPOSURE/ACT
23. SEX INTER. W/FEM. UNDER 14
24. SEX INTER. W/FEM. UNDER 16
25. HOSTAGE-CONFINEMENT-KIDNAPPING
26. INCEST
27. SEXUAL INTER. W/STEP DAUGHTER
28. BUGGERY-BESTIALITY
29. SEX ASSAULT W/WEAPON
30. OBSCENE MATERIAL
31. ROBBERY W VIOLENCE
32. ARMED ROBBERY
33. ROBBERY
34. USE OF A FIREARM DURING COM OF OTHER OFFENCE
35. EXTORTION
36. ATTEMPTED EXTORTION
37. COUNSEL TO COMMIT GROSS INDECENCY
38. AGGRAVATED SEX ASSAULT
39. SEX ASSAULT CBH
41. ASSAULT CBH
42. ASSAULT W WEAPON
43. ASSAULT
44. ASSAULT PEACE OFFICER
45. ASSAULT W INTENT TO WOUND
46. AGGRAVATED ASSAULT
47. THREAT TO INJURE
48. POSSESSION OF FIREARM
49. POSSESSION OF HOUSE BREAKING INSTRUMENTS
50. WEARING MASK/DISGUISE

OFFENCE CODES FOR ALL CPIC.DAT

- 51. BREAK AND ENTER
- 52. THEFT
- 53. POSS OF STOLEN PROP
- 54. AUTO THEFT
- 55. FRAUD
- 56. CONSPIRACY
- 57. WILFULL DAMAGE/MISCHIEF
- 58. FORGERY
- 59. DEALING W STOLEN CREDIT CARDS
- 60. UTTERING A FORGED DOCUMENT
- 61. TRAFFICKING
- 62. POSSESSIONS OF DRUGS
- 63. ATTEMPTING TO OBSTRUCT A PEACE OFFICER/JUSTICE
- 64. OBSTRUCTING A PEACE OFFICER/JUSTICE
- 65. FAILING TO APPEAR
- 66. FAILING TO REMAIN AT THE SCENE OF AN ACCIDENT
- 67. UTTERING THREATS
- 68. TRESSPASSING
- 69. ARSON
- 70. ATTEMPTING TO COMMIT FRAUD
- 71. CRIMINAL NEGLIGENCE CBH
- 72. DANGEROUS DRIVING
- 73. DRIVING WITH OVER 80MG ALCOHOL
- 74. FAILING TO PROVIDE SAMPLE
- 75. UNLAWFULLING IN DWELLING WITH INTENT TO COMMIT OFFENCE
- 76. LIVE BY PROSTITUTION
- 77. PROCURE
- 78. FALSE PRETENSE
- 79. PERJURY
- 80. INDECENT PHONE CALLS
- 81. ESCAPE LAWFUL CUSTODY
- 82. PAROLE REVOCATION/VIOLATION
- 83. MS REVOCATION/VIOLATION
- 84. PROVINCIAL STATUTES
- 85. BREECH PROBATION
- 86. ATTEMPT TO COMMIT A IND. CONVICTION OFFENCE
- 87. ATTEMPT TO COMMIT A SUMMARY CONVICTION OFFENCE
- 88. DRIVING WHILE DISQUALIFIED
- 89. UNLAWFULLY AT LARGE
- 99. NO OFFENCE

DISPOSITION CODES FOR CPIC1.DAT AND CPIC3.DAT

- 00. NONE
- 01. ABSOLUTE DISCHARGE
- 02. CONDITIONAL DISCHARGE
- 03. FINE UNDER \$1000.
- 04. FINE OVER \$1000.
- 05. BOND MONEY
- 06. FINE UNDER \$1000 I-D JAIL TERM
- 07. FINE OVER \$1000 I-D JAIL TERM
- 08. FINE PLUS PROBATION
- 09. SUSPENDED SENTENCE PROBATION -2YRS
- 10. SUSPENDED SENTENCE PROBATION 2YRS
- 11. SUSPENDED SENTENCE PROBATION +2YRS
- 12. -2YRS SENTENCE
- 13. 2 YRS
- 14. +2YRS
- 15. -2YRS PLUS PROBATION -2YRS
- 16. -2YRS PLUS PROBATION 2YRS
- 17. -2YRS PLUS PROBATION +2YRS
- 18. 2YRS PLUS PROBATION -2YRS
- 19. 2YRS PLUS PROBATION 2YRS
- 20. 2YRS PLUS PROBATION +2YRS
- 21. +2YRS PLUS PROBATION -2YRS
- 22. +2YRS PLUS PROBATION 2YRS
- 23. +2YRS PLUS PROBATION +2YRS
- 24. -2YRS CONSEC TO SENTENCE SERVING (fed time)
- 25. 2YRS CONSEC TO SENTENCE SERVING (fed time)
- 26. +2YRS CONSEC TO SENTENCE SERVING (fed time)
- 27. -2YRS CONC TO SENTENCE SERVING (fed time)
- 28. 2YRS CONC TO SENTENCE SERVING (fed time)
- 29. +2YRS CONC TO SENTENCE SERVING (fed time)
- 30. -2YRS PLUS CONDITION UPON REL.
- 31. 2YRS PLUS CONDITION UPON REL.
- 32. +2YRS PLUS CONDITION UPON REL.
- 33. +2YRS PLUS FINE
- 34. RECOMMITTED
- 35. LIFE
- 36. LIFE RECOMMITTED
- 37. PREVENTIVE DETENTION (DSO OR HABITUAL OFFENDER)
- 38. -2YRS PLUS PROBATION CONSEC TO SENTENCE SERVING (fed time)
- 39. +2YRS PLUS PROBATION CONSEC TO SENTENCE SERVING
- 40. TIME PLUS FINE I-D ADDED TIME
- 41. TIME CONCUR TO LIFE SENTENCE SERVING
- 42. FEDERAL OFFENDER ON MS, FINE - ID TIME PLUS PROBATION
- 68. FINE UNDER \$1000 I-D INCARCERATION TERM, PLUS PROBATION
- 69. FINE OVER \$1000 I-D INCARCERATION TERM PLUS PROBATION
- 70. -2YRS. PREVIOUSLY FOUND DSO

SEX SPECIFIC OFFENCE CODES FOR CPIC2.DAT

- 99. NONE
- 17. INDECENT ASSAULT FEMALE
- 18. INDECENT ASSAULT MALE
- 19. ATTEMPTED SEXUAL ASSAULT
- 20. SEX ASSAULT/RAPE
- 21. GROSS INDECENCY
- 22. INDECENT EXPOSURE/ACT
- 23. SEX INTER. W/FEM. UNDER 14
- 24. SEX INTER. W/FEM. UNDER 16
- 26. INCEST
- 27. SEXUAL INTER. W/STEPDAUGHTER
- 28. BUGGERY-BEASTIALITY
- 29. SEX ASSAULT W/WEAPON
- 30. OBSCENE MATERIAL
- 37. COUNSEL TO COMMIT GROSS INDECENCY
- 38. AGGRAVATED SEX ASSAULT
- 39. SEX ASSAULT CBH
- 80. INDECENT PHONE CALLS

LOCATION CODES FOR ALL CPIC.DAT

ATLANTIC

- 200. Bouctouche
- 201. Newcastle
- 202. Tracadie
- 203. Fredericton
- 204. Sackville
- 205. Saint John
- 206. Cambelton
- 207. Woodstock
- 208. New Glasgow
- 209. Kentville
- 210. Halifax
- 211. Sydney
- 212. Dartmouth
- 213. Sheet Harbour
- 214. Bridgewater
- 215. Antigonish
- 216. Windsor (NS)
- 217. Digby
- 218. Liverpool
- 219. Glace Bat
- 220. Middleton
- 221. Holyrood
- 222. Cornerbrook
- 223. St. John's
- 224. Stephenville
- 225. Grandfalls (Nfld)
- 226. Happy Valley Goose Bay
- 227. Springdale (Nfld)
- 228. Summerside
- 229. Charlottetown
- 230. SpingHill
- 231. Pictou
- 232. Andover

QUEBEC

- 300. Granby
- 301. St. Jerome
- 302. Montreal
- 303. Joliette
- 304. Hull
- 305. Longueuil
- 306. Sherbrook
- 307. Cowansville
- 308. Valleyfield
- 309. St Jean
- 310. Quebec
- 311. Chicoutimi
- 312. St. Joseph de Beauce

LOCATION CODES FOR CPIC2.DAT

ONTARIO

400. Sarnia
401. London
402. St. Thomas
403. Gore Bay
404. Milton
405. Barrie
406. Whitby
407. Richmond Hill
408. Ottawa
409. Brampton
410. Welland
411. Hamilton
412. Peterborough
413. Niagara Falls
414. Lindsay
415. Toronto
416. Oakville
417. Brighton
418. Sudbury
419. North Bay
420. Trenton
421. Brantford
422. Owen Sound
423. Orillia
424. Jamestown
425. Haileybury
426. Bracebridge
427. Kitchner
428. Newmarket
429. Windsor
430. Cambellford
431. Kingston

PRAIRIES

500. Edmonton
501. Ponoka
502. Calgary
503. Olds
504. Cochrane
505. Mayerthorpe
506. Evansburg
507. Red Deer
508. Peace River
509. Banff
510. Lethbridge

LOCATION CODES FOR ALL CPIC.DAT

PRAIRIES (CON'T)

- 511. Winnipeg
- 512. Drumheller
- 513. Selkirk (MAN)
- 514. Leaf Rapids
- 515. The Pas
- 516. Thompson
- 517. St. Boniface
- 518. Garden Hill
- 519. Regina
- 520. Dauphin (MAN)
- 521. Brandon
- 522. Swan River
- 523. Minnedosa
- 524. Fort McMurray
- 525. Saskatoon
- 526. Melfort (SASK)
- 528. Meadow Lake
- 529. LaRonge
- 530. Prince Albert
- 531. Coppermine (NWT)
- 532. Frobisher Bay (NWT)
- 533. Aklavik (NWT)
- 534. Stonewall
- 535. Yellowknife
- 536. Ile a la Crosse
- 537. Medicine Hat

PACIFIC

- 600. Quesnel
- 601. New Westminster
- 602. Surrey
- 603. Burnaby
- 604. Smithers
- 605. Vancouver
- 606. Langley
- 607. Nanaimo
- 608. Richmond
- 609. Dawson Creek
- 610. Prince George
- 611. Creston
- 612. Kamloops
- 613. Williams Lake
- 614. Courtney
- 615. Campbell River
- 616. Port Alberni
- 617. Hope
- 618. Cranbrook
- 619. Mission
- 620. Coquitlam

LOCATION CODES FOR ALL CPIC.DAT

PACIFIC (CON'T)

- 621. Maple Ridge
- 622. Kelowna
- 623. Armstrong
- 624. Rossland
- 625. Chillawack
- 626. Victoria
- 627. Vernon
- 628. Clearbrook
- 629. Endowlands
- 630. Prince Rupert

APPENDIX C

PREDICTIVE ATTRIBUTE ANALYSIS

Predictive Attribute Analysis is a classification technique which was adapted by MacNaughton-Smith and Wilkins from the earlier technique, Attribute Analysis. The classifying process of PAA is carried out to find the groups of attributes which are most predictive of some outcome variable. (MacNaughton-Smith, 1963) The main purpose of this technique is to "maximize predictive efficiency by classifying individuals in terms of those predictive attributes that are most strongly associated with the criterion variables" (Gottfredson and Gottfredson, 1987:61). As a binary segmentation technique, PAA attempts to explain as much as possible the variation in the dependent variable. Through successive binary splits the initial heterogeneous population is divided into successive homogeneous subgroups (Tarling and Perry, 1985). The result is a hierarchical structure referred to as a dendrogram (Greenberg, 1979). Initially all variables are placed into dichotomies and the subject is given a score of '1' for the presence of the variable or a '0' where the variable is absent. Continuous variables such as age which can not be placed into natural dichotomies, must be grouped with an optimal cut off point determined by the researcher. The dichotomies are then entered into a square matrix and the chi square statistic is calculated for each pair of variables in the table (Maxim, 1975). The chi square scores are then summated down each column such that:

$$X^2_j = X^2_{j,1} + X^2_{j,2} + \dots + X^2_{j-1}X^2_{j,j+1} + \dots + X^2_{j,n}$$

fig.2 Chi Square

The independent variable selected at each divisive stage of the analysis is the one most highly associated with the dependent variables as measured by the Chi Square (Tarling and Perry, 1985). The groups formed at each level of the hierarchy are treated as primary groups and the process continues until the Chi Square value drops below a specified value or 'stopping criterion'. Some proponents of PAA suggest that a group should not be divided if the maximum chi square value is less than 3.85 which corresponds to the criterion value with 1 degree of freedom (Tarling and Perry, 1985; Wilbanks, 1964). The direct result of this analysis is a hierarchical design of discrete groups that have either a very high or very low rate of success, referred to as predictive power. The most powerful explanatory factor is the one which has the greatest ability to differentiate between high and low success rates.

One disadvantage of PAA is that there is the likelihood that a variable with real predictive power may be omitted because it did not come up until the subgroups were too small (MacNaughton-Smith, 1963). Tarling and Perry (1985) found that because this technique requires dichotomous variables information may be lost when continuous variables are forced to be dichotomized through the researchers judgement.

BURGESS MODEL

One of the earlier models used in criminological prediction was the Simple Summation technique developed by Ernest Burgess. This model was created as an additive classifying technique which relies on dichotomous variables such that individuals are accorded a '1' for possessing a variable positively correlated with the outcome and a '0' for possessing an attribute which is negatively correlated with the outcome. The scores are summated and groups are made of those individual scores within a designated range. The overall success rate is determined and the results are presented in a base expectancy table (Greenberg, 1979; Gottfredson and Gottfredson, 1985). This system "is then used to evaluate individual offenders who receive a score reflecting their statistical chances of recidivating" (Nuffield 1982:42)

The disadvantage of this technique is that it ignores any interdependence between variables (Nuffield 1982) and accords equal weights to all variables even though some independent variables may be more highly correlated with the dependent or outcome variable (Greenberg 1979; Nuffield 1982).

STEPWISE MULTIPLE REGRESSION

Improving on the Burgess method is multiple regression which is a multivariate technique concerned with constructing an equation that will allow a criterion variable to be predicted based on the input of data collected on certain variables (Howel, 1987) Multiple regression accounts for the interrelationship between variables and the differential strength of association between

certain variables and the criterion variable (Greenberg, 1979).

The equation for multiple regression is modified from the linear regression equation such that:

$$Y=b_0+b_1x_1+b_2x_2+.....+b_nx_n$$

fig.3 Multiple Regression

where b_0 indicates the intercept; $b_1, b_2 \dots b_n$ are the regression coefficients for the predictors $x_1, x_2 \dots x_n$, respectively, which determine the regression equation. The main aim of this technique is to explain as much of the variance as possible by selecting those predictor variables which have the highest correlation to it. In essence, what is being sought is the square of the correlation (R^2) between the independent and dependent variables which indicates the proportion of variance accounted for by the independent variable(s). Because all variables will not explain the total variance of y where $y' = y$, there is an error term (e) used such that $e = y - y'$ or $1 - R^2$ and is known as the residual.

The initial stage of any multiple regression model is to determine the correlation coefficients between the independent and dependent variables. Often this becomes a cumbersome task and the need for a computer program such as SAS is necessary. Both independent and dependent variables are entered into the computer and the correlation coefficients are calculated for each pair of variables using a technique such as Pearson's Correlation Coefficient (Howel, 1987). What results is a number indicating the

strength of the linear relationship between two variables which "varies from 0 to +/- 1, with 0 indicating no association and +1 and -1 indicating perfect positive and perfect negative relationships respectively" (Healey, 1990 p.318). The calculations are obtained through the following formula:

$$r_{xy} = \frac{N(Exy) - (Ex)(Ey)}{[NEx^2 - (Ex)^2][NEy^2 - (Ey)^2]}$$

fig.4 Pearsons Product Moment Correlation

The strength of the association is determined by a level of significance value applied to the association. A level of probability such as $p \leq 0.05$ to $p \geq 0.001$ is used to determine the significance of the relationship.

The techniques employed in multiple regression govern the way in which the independent variables are included in the prediction equation. One of the more commonly used technique is the stepwise (step-up) regression analysis. This model applies the formula:

$$R^2_{0.123\dots p} = r^2_{01} + r^2_{0(2.1)} + r^2_{0(3.12)} + \dots + r^2_{0(1,j)}, j=2\dots p$$

fig.5 Stepwise Regression

where $R^2_{0.123\dots p}$ is the total amount of variance explained by all the variables; $r^2_{0.1}$ is the correlation of the first variable which is the variable with the highest correlation to the criterion

used after each addition to the equation. (Berenson et al. 1983)

Once the first variable is included in the model a partial F test is applied to the remaining independent variables. If the largest F value equals or exceeds the critical value of F needed to enter the model then a second variable would be included.

Stepwise regression is advantageous in that variables are brought into the equation in the order in which they contribute to prediction. Another feature is that "an independent variable which has been entered into the model at an earlier stage may subsequently be removed once other independent variables have been evaluated" (Berenson et al., 1983 p. 374) Stepwise regression also offers a cumulative influence of each variable in determining its relative power for explaining the outcome and accounts for any redundant information.

APPENDIX D

TABULATION CARD

PART A

Institution/Office:

Name:

FPS:

Birthdate:

Release Type: ☐ Day Parole ☐ Full Parole ☐ Mandatory Supervision
☐ UTA ☐ Under Suspension ☐ Not Released

Priorize the identified problem areas by marking # (1, 2, 3, 4) to indicate, in your opinion, the rank order of seriousness (1 being most serious, 2 second most serious, etc.), if you identify the offender has having one or more of the following disorders according to the descriptions provided:

TYPE OF DISORDERS	MARK WITH X IF IF THERE IS EVIDENCE OF DISTURBANCE	RANK ORDER OF SERIOUSNESS IF MORE THAN ONE
1. Suicidal		
2. Seriously depressed		
3. Thought disordered		
4. Socially and/or mentally incompetent		
5. Violence/aggression problem		
6. Serious sexual dysfunction		
7. Substance abuse problem		
8. Controlled thought disorder and/or affective disorder		
9. Stress induced psychological deterioration		
10. Other serious disorders (Specify below)		

TABULATION CARD

PART B

FPS: _____

1. To your knowledge, during the present sentence, has this offender been involved in any previous mental health intervention to deal with the identified problem areas?

☐ YES ☐ NO ☐ DON'T KNOW

If yes please specify:

2. Indicate what, if any, mental health intervention is occurring presently in this case to address the identified problem areas. Specify by name of resource person or agency.
3. What program, service or treatment would you like to see available for this offender, if, in your opinion, appropriate resources are not presently available?

4. In the event that an appropriate program, service or treatment was made available to assist this offender, what in your opinion, is the likelihood that he/she would agree to participate?

☐ WOULD READILY AGREE
TO PARTICIPATE

☐ WOULD AGREE ONLY IF DIRECTED TO DO SO
BY NPB OR CASE MANAGEMENT OFFICER

☐ WOULD NOT AGREE TO
PARTICIPATE UNDER ANY
CIRCUMSTANCES

☐ NOT ENOUGH INFORMATION
TO MAKE THIS JUDGEMENT

5. Comments (if any)

Name of Person Completing this survey: _____

Date Completed: _____

DESCRIPTION

The following descriptions and definitions are intended to assist in identifying those offenders who are PRESENTLY "disturbed" and who are perceived as needing the assistance of mental health professionals.

"Disturbed" - For the purposes of this study, a person is considered "disturbed" if their mental functioning is sufficiently impaired or their problem is so overwhelming as to interfere grossly with their capacity to meet the ordinary demands of daily living. Their perceptual disorganization, emotional distortion, and/or memory deficits are such that the offender's grasp of reality is effectively lost; and/or the person's problem is sufficient to cause considerable psychological distress for the offender and, perhaps, be very disturbing for others.

1. SUICIDAL TYPE

Evidence

- threatening or seriously contemplating suicide
- may be suffering from an active depression
- confused thought patterns, emotional instability and/or impulsivity may contribute to the risk

NOTE

Exclude those people who may have experienced a history of suicide attempts but who in your judgement are not seriously considering suicide at the present time. Also exclude those who are known to use suicidal threats or gestures to obtain special attention or medication in an institutional setting.

2. SERIOUS DEPRESSION

Evidence

- behavior may be marked by extreme lethargy and despair
- may isolate him/herself from the general population
- may appear frequently in a "black" despondent mood
- "black" moods may unpredictably be replaced with frivolous episodes of levity

3. SERIOUS THOUGHT DISORDER

Evidence

- thinking patterns which are markedly confused
- disoriented behavioral responses
- inappropriate emotional reactions
- may display bizarre behavior, paranoid thinking and/or extreme unpredictability
- leaves impression of being seriously disturbed in spite of periods of lucidity during which he/she seems normal and "together"

4. SOCIALLY AND/OR MENTALLY INCOMPETENT

Evidence

- creates administrative problems in prison or society due to difficulties in living a normal life caused by a psychological and/or physiological condition
- offender appears incompetent, mismanages many aspects of daily living and one may find his/her inability to cope irksome
- probably requires special care or supervision dealing with day to day functioning

5. VIOLENCE AND/OR AGGRESSION PRONE

Evidence

- violent reactions may be triggered unpredictably without sufficient provocation or under circumstances which would not normally provoke such a reaction
- rages may be intense, prolonged and occur with increasing frequencies
- offender's behavior may be seen by others as being explosive, sadistic and out of control
- rages may cause distress or psychological confusion for the offender

NOTE

There may be some difficulty in distinguishing this person from the "tough guy" or the person who may from time to time take extraordinary measures to defend him/her self.

6. SERIOUS SEXUAL DYSFUNCTION

Evidence

- substantial sexual disorder which 1) is a source of considerable distress for the inmate/parolee; and/or 2) creates a problem for the general inmate population; and/or 3) will likely create problems for the public
- the sexual disorder is likely to lead to criminal acts after release

NOTE - EXCLUDE FROM SURVEY

- sexual behavior causes offender no stated concern
- sexual behavior causes no particular problem for society or the general inmate population
- sexual behavior will not likely be cause for criminal charges if the offender engages in the behavior after release

7. SUBSTANCE ABUSE

Evidence

- the offender demonstrates a pathological use of and/or dependence
- may need daily use of a substance for adequate functioning
- may demonstrate an inability to cut down or stop use of a substance
- may have made repeated (and unsuccessful) attempts to control use of a substance
- may binge (remain intoxicated for more than two days)
- may suffer periods of amnesia (black-outs) as a result of substance abuse
- may suffer serious impairment in social and/or occupational functioning due to substance abuse
- may require increased amounts of the substance to achieve the desired effect

NOTE

An offender who currently demonstrates a serious abuse problem would fall in this category. Offenders who have overcome their dependencies would not be included.

8. CONTROLLED THOUGHT DISORDER AND/OR CONTROLLED AFFECTIVE DISORDER (DEPRESSION)

Evidence

- the offender has a history of mental illness and is managing satisfactorily in "normal" population as a result of ongoing medication and/or professional care
- his/her adequate functioning is probably a result of treatment and you would expect the offender's condition to worsen if the ongoing maintenance program was discontinued.

9. STRESS INDUCED PSYCHOLOGICAL DETERIORATION

Evidence

- offender may experience periods when his behavior, cognitive processes, or emotions become markedly more disorganized, change markedly from the previous norm, or seem to deteriorate
- may appear dazed at times, as if "high" on a drug, where drug involvement is denied or unlikely
- may experience periods when previously forgotten worries, memories, or emotions appear to come back from the past to haunt him and upset him
- obvious pressures or frustrations may cause unusual or unexpected changes in the offender's normal emotions or behavior.

10. OTHER SERIOUS DISORDERS

Evidence

- the offender suffers from some other significant disorder than the ones indicated above
- may suffer from a significant personal problem which is distressing and detrimentally influencing daily functioning
- may suffer from intense phobias which impact significantly on his/her ability to function "normally"
- an overwhelming inferiority complex might be included in this category

MENTAL DISORDER SURVEY SUMMARY SHEET

1. INSTITUTION/PAROLE OFFICE: _____
2. DATE OF SURVEY: _____
3. TOTAL NO. OF OFFENDERS ON INSTITUTION/OFFICE REGISTER AS OF 87-05-06: _____
4. TOTAL NUMBER OF OFFENDERS ON YOUR REGISTER WHO HAVE BEEN IDENTIFIED AS DISTURBED AND HAVE BEEN INCLUDED IN THIS SURVEY: _____
5. PLEASE LIST ALL STAFF WHO COMPLETED THE SURVEY AND INDICATE NUMBER OF CASES INCLUDED PER STAFF AND DATE THEY COMPLETED THE STUDY.

STAFF WHO COMPLETED SURVEY	NUMBER OF CASES PER STAFF INCLUDED IN SURVEY	DATE SURVEY COMPLETED

NAME OF PERSON/AGENCY UNDER CONTRACT	TYPE OF SERVICE PROVIDED	FY 6/87 ANNUAL COST	LINE OBJECT NUMBER	FY 86/87 NUMBER OF CLIENTS REFERRED
TOTALS				

NAME OF PERSON/AGENCY PROVIDING SERVICES AT NO COST TO CSC	TYPE OF SERVICE PROVIDED	ESTIMATE NUMBER OF CLIENTS REFERRED PER QUARTER
TOTALS		

7. IF ANY OF THE ABOVE RESOURCES ARE NOT EASILY ACCESSIBLE BY CSC CLIENTS, PLEASE INDICATE THE RESOURCE AND OUTLINE THE DIFFICULTIES WHICH HAVE TO BE OVERCOME PRIOR TO ACCEPTANCE.

8. DO YOU ANTICIPATE ANY MAJOR CHANGES IN PROGRAMS, SERVICES OR FINANCIAL RESOURCES AVAILABLE TO YOUR FACILITY DURING FISCAL YEAR 1987-1988? PLEASE SPECIFY.

9. IN YOUR OPINION, DO THE MENTAL HEALTH NEEDS OF YOUR OFFENDERS EXCEED THE AVAILABLE TREATMENT RESOURCES AND IF SO PLEASE SPECIFY WHAT RESOURCES YOU FEEL ARE NECESSARY TO FILL SUCH NEED?

10. DO YOUR STAFF HAVE ACCESS TO PROFESSIONAL MENTAL HEALTH CONSULTANTS TO DISCUSS DIFFICULT CASES? INDICATE THE TYPE OF SERVICE AVAILABLE AND ESTIMATE THE NUMBER OF CASE CONSULTATIONS PER QUARTER.
11. DO YOU FEEL THERE IS A NEED FOR THIS TYPE OF SERVICE IF IT IS NOT NOW AVAILABLE? IF YES, PLEASE ELABORATE.
12. IF YOU HAVE A MENTAL HEALTH RESOURCE IN YOUR AREA WHICH YOU CONSIDER UNIQUE OR OF EXCEPTIONAL QUALITY, PLEASE PROVIDE THE NAME OF THE AGENCY AND A BRIEF DESCRIPTION.