

**PERSON-SITUATION RELATIONSHIPS IN VIOLENT BEHAVIOUR:  
THE ASSESSMENT OF VIOLENCE-POTENTIAL**

by

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## ABSTRACT

This study explored the relationship between personality characteristics and situational factors with regard to violent behaviour. Two hundred and twenty-two male young offenders completed the Minnesota Multiphasic Personality Inventory - 1 (MMPI). As well they identified their behavioural responses to 35 hypothetical situations that involved potential for aggression. MMPI clinical scale scores and responses to the situational vignettes were cluster analyzed both independently and in combination. A variety of dissimilarity metrics and clustering algorithms were employed. The results of these analyses suggested that there were no disjoint clusters in the data. Visual inspection of the data in 3-dimensional space supported this result. Given the failure of the data to form distinct clusters, subsequent planned discriminant analyses of other personality measures and offence history data were not undertaken. Discussion of possible reasons for the failure to find disjoint clusters in the data is followed by suggestions for future research on the identification of violence-potential.

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## INTRODUCTION

Violence is a major issue of social concern. The public demands protection from violent individuals. Public protection needs force courts and parole boards to determine the future dangerousness or violence-potential<sup>1</sup> of individuals. To assist in these determinations, the decision-makers frequently request input from psychologists and psychiatrists. Although there is an expectation that those who study human behaviour should have some expertise in prediction, early research on clinical predictions of dangerousness suggested a lack of accuracy. The overprediction of dangerousness (i.e., identifying individuals as dangerous who subsequently do not engage in violent acts) which may result in loss of liberty, has prompted the admonition that mental health professionals not be involved in determinations of dangerousness. Although this admonition may be warranted, the 'conclusive' evidence upon which it is based is, in fact, highly questionable.

The few early outcome studies of clinical prediction of violence on which this conclusion was based are seriously flawed (Litwack, 1985). The problems with this research

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<sup>1</sup> Although 'dangerousness' implies a characteristic of the individual and can be distinguished from both 'violence-potential' and 'aggressiveness', these terms are often used interchangeably in the literature. When used as synonyms in the literature applying to offender populations, these terms generally refer to the future likelihood of infliction of physical harm on another person.

prompted Monahan (1984) to conclude that "Little is known about how accurately violent behaviour can be predicted in many situations" (p.11). Proponents of continued research on violence prediction (e.g., Monahan, 1984) advocate a change in research methodology, which may include the incorporation of actuarial and situational data, and an investigation of the process followed by clinicians in the assessment of violence-potential (Webster, Menzies, & Jackson, 1982; Werner, Rose, & Yesavage, 1983). It has been suggested that clinicians may base their predictions upon illusory correlations (Monahan, 1981), and that increased accuracy of prediction requires that judgments be based upon known probabilities (Webster et al. 1982).

Early research efforts which attempted to identify reliable correlates of violent behaviour were plagued with difficulties. Furthermore, there are major discrepancies between the methods and conceptualizations of the vast majority of current and past research, and with current recommendations for procedures to follow in assessing the violence-potential of individuals.

A short review of the major problems inherent in violence-prediction and aggression research in general will be presented. This review will be followed by a description of current recommendations for the assessment of violence-potential. A discussion of two directions which future research may take is followed by a description of the

current research study. The study is conceptualized as preliminary work that may contribute to the understanding of the relationship between persons and the situations in which they are violent, and which ultimately may aid in the assessment of violence-potential.

### Problems in research on, and in the prediction of, violence

Numerous problems have been identified in research on violence, and in violence prediction. First, there is a lack of consensus regarding operational definitions of violence. Second, there are problems in measuring violence. In regard to prediction and the generalizability of much research on aggression, the problems of low base rates and sampling arise. Conceptually, it is argued that the dichotomization of subjects into violent/nonviolent, or high and low aggressive groups, is unreasonable, and that the utility of univariate discriminators is highly questionable. Each of these difficulties is discussed below.

#### *Definitions of violence and aggression*

Perusal of the research literature indicates that there is considerable diversity in the operational definitions of violence. The definitions range from intrainstitutional "attempt(s) to inflict injury upon persons or property" (Spellacy, 1977, p. 967), to conviction for specific

offences such as murder and assault. The latter definitional strategy appears to have more acceptance within the field, however, complete consensus regarding which offences are violent has not been obtained. Although frequently included amongst 'violent offences', questions may be raised about sexual offences, arson, and robbery. Hollin and Wheeler (1982) specifically excluded from their sample subjects who had committed sexual offences or arson contending that these offences may not be purely violent in nature. Threat and a high potential for injury are present in robbery, however, this act usually does not result in physical injury to victims (Vetter & Silverman, 1978).

In regard to aggression<sup>2</sup> in general, many studies of children may include observations of verbal attack and insult, pushing, hitting, and fighting. A common operational definition in laboratory research, however, is willingness to administer shock to an opponent, or an increase in the intensity of shock administered (Krebs & Miller, 1985). Although some of the results obtained in these latter studies may contribute to the understanding of violence, many of the research findings may not be

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<sup>2</sup> Aggression, as generally operationally defined, is more encompassing than either violence or dangerousness. Often verbal abuse and hostile demeanour would be included as aggressive acts. In its broadest sense, as used in contrast to assertiveness, aggression refers to any action that violates the rights of others.

generalizable. From the above examples, it is clear that definitions of violence and aggression show wide diversity.

Megargee (1984) suggests that 'intentional injury of another person' would be generally accepted as a definition of aggression. Severe acts of aggression would be classified as violent. He notes, however, that this definition is far from perfect. He provides examples of acts which would not be denoted as violent using this definition. His examples include unintentional injury, intent without injury (the bullet that missed), psychological (versus physical) injury, and injury as a result of omission, rather than commission. Obviously more work is required to achieve an adequate definition of violence.

#### *Measures of violence*

Even if consensus existed regarding the definition of violence, problems remain. Criminal records are frequently used both to identify violent individuals, and as the criterion measure to assess predictive accuracy. However, it is well known that the vast majority of crime goes unreported, particularly when it occurs within the family (Hall, Catlin, Boissevain, & Westgate, 1984; Reid, 1976). The National Victimization Panel report (1978, cited in Hall et al. 1984, and in Monahan, 1981) indicated that only about one-half of violent crimes are reported. Of those reported,

one-third result in arrest, and only about 2 percent of all complaints result in conviction. Current Canadian statistics indicate that of those offences reported to or otherwise known to the police in 1990, 49 percent resulted in arrest (Statistics Canada, 1991). These data indicate that conviction data continues to significantly underrepresent actual crime. A variety of factors unrelated to violent behaviour affect who is arrested and convicted (Monahan, 1981). However, since a small number of individuals tend to be responsible for the vast majority of violent offences, identification of many violent individuals may be possible with this method.

Identification, however, requires assessment of the history of offences. Some researchers make use of the current conviction to classify their subjects. This procedure is problematic in that those who have committed violent offences in the past may be currently incarcerated for the commission of a nonviolent offence. Criminal histories of violent offenders may include as many convictions for nonviolent as for violent offences (e.g., Hill, Langevin, Paitich, Handy, Russon, & Wilkinson, 1982), and violent offences are much more likely to be followed by conviction for a nonviolent offence than for a violent one. Holland and McGarvey (1984) found that the probability that a violent offence would be immediately followed by another violent offence was .21. The implication of this pattern of

convictions is that an identified violent individual, predicted to be violent again, and who is subsequently incarcerated following conviction for a nonviolent offence, may appear as a false positive if the follow-up period is insufficiently long to allow for numerous reconvictions. Combining this pattern with the finding that few violent acts result in conviction, suggests that, as a criterion measure, criminal records are sorely wanting.

*The problem of low base rates*

Violence is a rare phenomenon (Hall, 1984; Loeber, 1982) and, as mentioned above, a small number of individuals are responsible for most violent acts. The low base rate for violence creates difficulties for prediction in that an essentially perfect predictor is required in order to reduce error rates to an acceptable level. Lacking this perfect predictor one is continually confronted with the problem of overestimation of future violence (Blackburn, 1983; Hall et al. 1984; Monahan, 1981; Webster, 1990). However, as aggression has been found to be a relatively stable characteristic of individuals (Cairns, Cairns, Neckerman, Ferguson, & Gariepy, 1989; Loeber, 1982; Moskowitz, Schwartzman, & Ledingham, 1985; Olweus, 1977; Stattin & Magnusson, 1989), the base rate for violence amongst aggressive individuals is much higher than that within the general population (Hall, 1984). Continued commission of

violent acts by identified violent individuals may be of a sufficiently high rate to render prediction feasible (Hall et al. 1984).

*Sample size and sampling problems of past research*

In addition to the diversity of definitions of violence, inadequate measures of violence, and the low base rate problem, research on the identification of violence indicators suffers from sampling problems (Smylie, 1986a). Both very small samples and highly discrepant sample sizes are a frequent occurrence in this literature. Both of these shortcomings result in a lack of statistical power to detect differences between violent and nonviolent groups. The opposite problem of excessive power also occurs occasionally. For example, the actuarial study of Heller and Ehrlich (1984) was based on a sample size of 1525. When the present author assessed the magnitude of the associations for statistically significant discriminators in this actuarial study, it was found that they tended to be of zero-order magnitude. To accurately assess the utility of findings in this literature, it is often necessary to determine the actual magnitude of the effects.

In addition to the problem of sample sizes, the diversity of populations studied (e.g., maximum or medium security prison inmates, psychiatric patients) in violence studies render comparisons across studies problematic.



Moving into the literature on aggression in general, which is expected to have implications for the more severe forms defined as violence, compounds the problem. Patterns of aggression amongst children and university or college students may have more differences from, than similarities to, felonious acts of violence. Krebs and Miller (1985) note that there is very little ecological validity associated with the laboratory studies of aggression (which often use students). They suggest that in the laboratory, aggression, usually involving electric shock, is justified and even required by the situation. Furthermore, as Wiggins (1983) notes, these studies generally involve strangers, which may not be the most common case in real-life violence. Moreover, particularly in regard to university and college students, generalizability from normal to deviant samples may be unwarranted, and could be misleading.

#### *The dichotomization of samples*

Most research on violence conducted to date contrasts the violent with the nonviolent offender. This classification implies both that all violent acts are equally violent in nature, and that all violent offenders are equally violent in degree. Certainly few would agree with these assumptions. Recent literature has begun to acknowledge the heterogeneity of violent offenders, and to stress the need to identify homogeneous subtypes of violent

offenders (Blackburn, 1983; Garrison, 1984; Megargee, 1970; Smylie, 1986a). A parallel practice is found in the general research on aggression, wherein groups are often labelled as high and low in aggression. Although this procedure may be problematic in both fields of research, at least some potentially useful information has been gathered in these studies.

### *Univariate discriminators*

Along with the acknowledgement that violent offenders are not homogeneous comes the recognition that multiple factors contribute to the potential for violence (Blackburn, 1983; Megargee, 1970, 1984; Monahan, 1981). Past research has frequently addressed the question of univariate discrimination between violent and nonviolent groups. The results tend to be highly inconsistent, and, not surprisingly, statistically significant discriminators within studies tend to explain too little of the variance to be of any practical utility (Smylie, 1986a). Probably the most useful information to come out of the past thirty to forty years of research along these lines is that the unitary conception of the violent individual, acting in response to an inherent single cause, is naive. However, numerous variables have been identified that are sometimes associated with aggression and violence. Certainly it is now accepted that the best single predictor of future

violent behaviour is a past history of violence. However, numerous other factors influence the probability of future violence including, but not limited to, other historical variables such as having been victimized or exposed to violent role models; demographic characteristics such as sex, age, and marital status; acute and chronic life stressors; personality variables such as capacity for empathy, self-perception as dangerous or non-dangerous, self-esteem, degree of frustration tolerance, and inherent hostility; cultural and subcultural attitudes toward violence; opportunity variables such as the availability of victims and of weapons; and drug and alcohol abuse. The current need is to determine in what ways these factors may combine to produce different acts of violence.

*Current recommendations for the assessment of violence-potential*

As mentioned above, the cause of violence is no longer considered to reside entirely within the individual (Blackburn, 1983). In addition to the recognition of the heterogeneity of violent offenders, it is now proposed that violence is the result of a person-by-situation interaction (Megargee, 1984; Monahan, 1981).<sup>3</sup> A convicted murderer in

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<sup>3</sup> One explanation proposed for previously unacceptably high false positive rates for predictions is that situational factors were not taken into account (Monahan, 1981). Another contributor to the false positive rate is likely to be the inadequacy of the criterion measure, specifically further

solitary confinement will not commit a further homicide while so detained. Acknowledging both the heterogeneity of violent offenders, and the role of situational factors, it is suggested that both be assessed in order to predict violence.

In regard to person variables, Megargee (1970, 1984) suggests that instigations to aggression, inhibitions against aggression, and habit strength all be assessed. Instigations to aggression may be physiological or psychological, which in turn may be extrinsic (instrumental) or intrinsic (anger). Inhibitions against aggression follow a similar pattern to psychological motivators. Finally, habit strength refers to the reinforcement history for past aggressive acts, which requires going beyond criminal histories. Megargee notes, however, that these elements may not be as easy to assess as they may appear initially. For example, he suggests that the most direct way of assessing inhibitions requires that instigation be present. He notes, however, that provoking the individual in order to assess his inhibitions is not only unethical, but also unsafe.

Assessing the situation also poses difficulties. The first problem resides in the definition of a situation. Monahan and Klassen (1982) discuss this problem in detail. One of the most important distinctions that they make is

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convictions. As Monahan (1981) notes, true positives may simply be truer, and many of the false positives are likely to be undetected true positives (Litwack, 1985; Monahan, 1981).

between the actual and the perceived situation. In regard to predicting violence, the latter may be the more important (see also Megargee, 1984).

Keeping this distinction in mind, Monahan and Klassen (1982) go on to suggest that the best candidates for situational correlates of violence may be family, peer, and job environments, and the availability of victims, weapons, and alcohol. Embedded in these categories are elements of stress, support, encouragement, discouragement, and influences on the severity or lethality of any acts that do occur. Megargee's (1984) list of situational factors includes the behaviour of antagonists or victims, of other members of a group, and of bystanders, as well as opportunity, crowding, and the availability of and familiarity with weapons. It appears that Megargee is using a definition of situation that would be classed by Monahan and Klassen as being of a smaller unit size than their own definition. Regardless, these are all factors that would appear to be useful in the assessment of violence. It should be noted that the assessment of these factors in regard to past acts must be accompanied by an assessment of the likelihood that similar situational factors will prevail in the future.

Although these recommendations would appear to have considerable merit, what this constitutes is a method for

predicting the probability of violence,<sup>4</sup> with virtually no evidence that the method will be successful. Obtaining the evidence desired may necessitate a drastic change in research strategy. Two strategies are suggested to garner evidence for the utility of this predictive strategy.

### Directions For Future Research on the Prediction of Violence

The two strategies proposed follow the well known longitudinal and cross-sectional formats. Each method can contribute to knowledge regarding the possibility of acceptable accuracy rates for predictions of violence.

#### *Longitudinal research*

It has been argued that past follow-up studies assessing the accuracy of predictions of dangerousness failed dismally in actually presenting a fair test of the question (Blackburn, 1983; Litwack, 1985; Megargee, 1970; Monahan, 1981). In fact, there appears to be only one early study which came close to being adequate. The study, conducted by Cohen, Petrelli, and Boucher (Cohen, Groth, &

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<sup>4</sup> Note that it is recommended that predictions not state that the individual will be violent, but rather that the probability that the individual will engage in a future violent act under particular circumstances be specified (Blackburn, 1983; Megargee, 1970, 1984; Monahan, 1981).

Siegel, 1978)<sup>5</sup> dealt with the recidivism rate of sexual offenders. During the five-year follow-up period 38.7 percent of those considered to be dangerous committed a new sexual offence, compared to 8.6 percent of those predicted to be nondangerous. Although the rates of recidivism for the two groups are substantially different, the common criticism of an excessive rate of false positives can be directed at this study. A positive aspect of this study was that full clinical assessments were conducted. However, numerous problems are evident, which also suggest the directions that future research might take.

First, subjects were predicted to be dangerous or nondangerous. Probabilities of future commission of new sexual offences, under which specific circumstances, would be more appropriate (see Megargee, 1984, and Monahan, 1981). Second, at least some of the subjects may have been on parole or probation for at least part of the follow-up period, as follow-up commenced upon release to the community. Earlier in their article, Cohen et al. (1978) note that many ex-offenders do not begin to engage in further criminal activity until their parole period has ended. Third, as mentioned earlier, detected offences are likely to reflect a considerable underestimate of actual violent acts. It may be impossible to overcome this

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<sup>5</sup> These authors state that this is the study reported in Kozol, Boucher, and Garofalo (1972), but that the researchers were not given credit for the study.

problem. How likely are individuals to self-report crimes which have not been detected, particularly to persons who explicitly indicated to the court that they should not be released? Fourth, the authors fail to indicate what the base rate for recidivism is in this population. It is known that the recidivism rate differs for different types of offences. For example, murderers tend to have a good prognosis (Blackburn, 1983). Finally, given that specific reliable predictors have not as yet been identified for different types of offences, it is not known whether the authors incorporated the best predictors. As Blackburn (1983) so aptly stated:

As long as we remain relatively ignorant of the psychological precursors of antisocial behaviour, what we put into our predictors amounts to no more than guess-work or 'shotgun empiricism'. (p. 57)

The immediate research need then becomes the identification of the precursors and/or correlates of violent behaviour.

A more recent study approaches the prediction of violence from a statistical basis. Duckitt (1988) reports that the State of Iowa prison system combines factors such as substance abuse and history of violence both additively and interactively to make predictions. Although their results are promising, the use of purely historical variables fails to acknowledge any changes that the offender has made while incarcerated and supposedly rehabilitated. Hence, purely actuarial assessment which does not take the current state of the individual into account may be deemed



discriminatory. Obviously, more research is required to identify a broader range of variables associated with violence. The second strategy for conducting research into the prediction of violence addresses this issue.

#### *Cross-sectional research*

As Megargee (1970) noted, previous researchers, by taking scales out of context, were not only unsuccessful in identifying violent individuals, but were not addressing the more holistic, configural approach to assessment that clinicians follow. Furthermore, the heterogeneity of violent offenders and offences was not acknowledged. It is necessary, therefore, to go beyond the univariate prediction paradigm, and to study more homogeneous subtypes of violent offenders.

As a first step, it is necessary to identify subtypes of violent offenders. One suggestion would be to look at individuals who had committed different types of offences, such as murderers and rapists. There are two major problems with this suggestion. First, individuals may commit a wide variety of criminal acts. By which acts will they be classified? Second, classifications based upon specific offences may result in heterogeneous groups, in which the significance of particular predictors, or correlates, would be obscured. For example, three acts of murder may differ considerably in regard to instigation. One murderer may be

acting in response to his delusional system. The second murderer may take part in a brawl that results in a fatality, and the third murderer may commit an act of euthanasia. Although these types may represent an extreme example, Megargee (1984) notes that typologists typically find that they must postulate 6 to 12 different types within each offence category to account for the variability. It is not thereby implied that there would be no overlap between types across offences. A charge of robbery or murder might result from the same crime but differ on the basis of injury to a victim. The individual charged with murder due to the fatal outcome of a brawl may be more similar to numerous persons charged with assault, than to some other murderers. A more reasonable starting point, therefore, may be to ignore the official charge category and look at the individual acts. Criminal acts may be rated on such factors as apparent instigation, injurious outcome, and whether the act was committed while alone or as part of a group. Types of acts may then become apparent (Monahan & Klassen, 1982).

Additionally, the perpetrator must be assessed. A complete assessment would include demographic information, personality traits, social and developmental history, history of violent offences, and so on. Given all of these data one could then determine whether particular types of individuals tended to engage in particular types of acts, and with what frequency. What characteristics do individuals

who engage in act A have in common, and how do they differ from individuals who engage in act B?<sup>6</sup>

If this 'situation-centered perspective' (Monahan, 1981; Monahan & Klassen, 1982) was successful in identifying person-situation clusters,<sup>7</sup> it might allow for more accurate predictions, and differential predictions. Certainly, identifying what person variables are characteristic of what acts would be a vast improvement over previously identified inconsistent predictors of a heterogeneous class of behaviours. The current study represents an initial attempt to identify person-situation clusters in violent behaviour.

#### Development of the current study

The design and focus of the current study is a direct outgrowth of the author's previous research in this area. In a prior study (Smylie, 1986a), discrimination between violent and non-violent young offenders was attempted with neuropsychological tests. Institutional behaviour records, peer nominations, and offence history data were factor-analyzed along with neuropsychological test scores and self-

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<sup>6</sup> The approach advocated here is that recommended by Monahan (1981) and Monahan and Klassen (1982), building upon the work of Bem and Funder (1978).

<sup>7</sup> Persons and situations are not independent (Monahan & Klassen, 1982). As Blackburn (1983) states "people tend to create their environments, and many crimes of violence are apparently typical of the offender. What is typical is predictable" (p. 70).

report data of psychologically distressing symptoms. Rather than obtaining factors which discriminated between violent and non-violent offenders based on neuropsychological functioning, the results suggested a possible discrimination between victimized sexual offenders, other person offenders, bright individuals reporting an history of head injury, and non-violent individuals who were experiencing psychological distress. Measures of violence were highly intercorrelated, and dichotomization of the sample into violent and non-violent groups produced non-significant results. Closer scrutiny of the data suggested that the violent offenders composed a much more heterogeneous group than did the non-violent offenders. In this regard, adolescent murderers also appeared to form a distinct subgroup within the violent classification. It was proposed that there was a need to identify more homogeneous subgroups of violent offenders.

Although the above noted results would appear to suggest classification of subjects based on offence type, some of the problems with this approach have been addressed earlier in this paper. Review of the violence literature suggested that consensus regarding subtypes was lacking, and considerable overlap of types across offence categories was evident. It also became apparent that research in this area continued to focus on isolated aspects of either the individual (as had this author in prior research) or the situations in which violence occurred. Review of the

recommendations for the assessment of violence-potential suggested a need to combine these factors within homogeneous subtypes of violent individuals. The question of how to define the subtypes remained.

Comprehensive review of the literature on dangerousness, violence, and aggression as well as the literature regarding the prediction of such behaviour suggested that we continue to struggle with the issue of how best to assess violence-potential. Although we have not as yet determined with what degree of accuracy we can predict future violent behaviour, the need to assess violence-potential remains, and many researchers express optimism with regard to our assessment abilities and our potential both to better document our current degree of predictive accuracy and to improve upon it. Certainly this body of literature has provided us with a comprehensive list of variables associated with violence, and guidance with regard to the variables to assess in individual cases (for example, see Hall, 1984 or Monahan, 1981). As a next step, we can explore various methods of combining these factors to determine which combinatorial methods are optimal for assessment and prediction within particular groups of individuals.

The ideal study would include a vast number of situations, with all combinations of relevant variables included. A large number of persons, for whom immense

amounts of data were available, would report their perceptions of each situation, and their behavioural reaction to each would be recorded. Additionally, the immediate motivations of the subjects (e.g., affect, needs) would be varied to determine how these changes affected perceptions and behaviours. Unfortunately, few people have the resources to conduct such a study. The study presented is much more modest, and only samples some of the characteristics thought to be related to violent interactions.

As noted earlier, research findings based upon differing populations frequently fail to generalize, and base rates for violence vary greatly across populations. Therefore, discussion of the choice of population for study precedes a review of the measures considered for inclusion in the study. This review is followed by a summary of the research design and discussion of the anticipated results.

### *The population*

In order to assure a reasonable base rate for violence, it would appear necessary to use an incarcerated population for this study. Furthermore, in attempting to predict the violence-potential of individuals, it is from this population that many clinicians will be sampling.

It has been suggested that the vast majority of violent acts are committed by youth: physical assault and violence

reaching a peak during adolescence (Rutter, 1985), and arrests for violent crime peaking between the ages of fifteen and twenty years (Monahan, 1981; Mulvey & Lidz, 1984). The peak age for violent offences in Canada may be slightly higher than these rates. Any statistics available, however, are insufficiently detailed to draw conclusive statements. Statistics Canada provides rates for adults versus young offenders for violent crime in general. In 1986 young offenders were deemed to have been responsible for approximately 16 percent of violent crime nationally, and about 19 percent in British Columbia (Statistics Canada, 1987a). In regard to homicide, those aged 10-17 were suspected of 7.7 percent of incidents, and those 18-29 of 49.9 percent of incidents (Statistics Canada, 1987b). Rates for violent crime in general have been rising, showing an increase of 16 percent from 1982 to 1986 and a further 25 percent from 1986 to 1990 (Statistics Canada, 1987a & 1991). In 1990 young offenders were deemed to be responsible for approximately 17 percent of violent crime nationally, and 21 percent in British Columbia. Youth in British Columbia were also held responsible for 35 percent of general weapons offences, and 59 percent of arson offences, both rates exceeding the national rates (27% and 52% respectively; Statistics Canada, 1991).

A study of forensic subjects assessed at the Clarke Institute in Toronto, Ontario suggested that those aged 15

to 19 and those aged 20 to 24 were responsible for similar homicide rates (17.5% and 19.4% respectively; Langevin, Paitich, Orchard, Handy, & Russon, 1982). At the same institution a similar equivalence was noted in arson rates for those aged 19 and under (36.8%) versus those aged 20 to 29 (39.5%), whereas a large difference in regard to assault was found. The younger group was responsible for 20.8 percent of assaults and the young adults for 58.3 percent of these offences (Hill et al. 1982). If the peak age for violent crime in Canada is in the 20s, then identification of those who have a potential for violence while they are adolescents allows for the possibility of earlier intervention. The most reliable predictor of future violence that has been identified to date is a past history of violent acts, and often early age of onset is associated with habitual violence (Kelso & Stewart, 1986; Monahan, 1981; Mulvey & Lidz, 1984). Given that aggression has been found to be a relatively stable characteristic of individuals (Cairns et al., 1989; Loeber, 1982; Moskowitz et al., 1985; Olweus, 1977; Stattin & Magnusson, 1989) often manifest by eight years of age or younger, it follows that the most violent youth are likely to have established fairly stable aggressive response patterns by 15 to 16 years of age. Additionally, Felson, Ribner, and Siegel (1984) suggest that youth may be more supportive of violence in general, implying that violence amongst youth may,



therefore, be more intense. Combining this information suggested that it would be reasonable to use an adolescent population. Furthermore, testing at this age allows for a reasonable number of years for follow-up wherein the base rate for violence remains high.

Finally, given that youth in Canada are detained under the Young Offenders Act wherein the maximum sentence is 3 years (recently raised to 5 years), all youth that have not been raised to adult court, whether considered violence-prone or not, will be released into the community in the near future. Thus the accuracy of predictions of future violence may be assessed within the natural course of events while the youth remain at risk for violent offending. This possibility is less frequently presented in adult populations wherein those predicted to be dangerous may be detained for lengthy periods of time, sometimes indefinitely.

In addition to the age factor, it is well known that the vast majority of violent crime is perpetrated by males. Taken together these findings suggested that an appropriate sample for this study would be male young offenders. Having chosen the population of study, consideration of the measures to be included was undertaken.

### *The choice of measures*

In an attempt to mimic true clinical assessment, and to incorporate the recommendations for assessment made by such authors as Hall (1984), Megargee (1984), and Monahan (1981), the literature was searched with regard to both objective and projective personality measures, specific personality traits that could either increase or decrease the propensity for violence, and situational factors related to violent behaviour. Discussion of this literature includes the reasons for the final choice of measures.

### *Person measures*

The Minnesota Multiphasic Personality Inventory - 1 (MMPI) may be the most frequently utilized instrument in assessments within the criminal justice system (Holcomb, Adams, Ponder, & Anderson, 1984). A review of the literature suggests that it is also the most widely researched clinical instrument with regard to violence. The research on the MMPI ranges from comparisons of individual clinical, validity, and special scales, through research on high-point pairs, to complete profile analysis.<sup>8</sup> Generally, the research with individual scales has produced disappointing results. In regard to the clinical and

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<sup>8</sup> For a review of the research on the use of the MMPI in the identification of violent offenders, see Smylie (1986b).

validity scales, although virtually every scale has significantly discriminated between violent and nonviolent groups in some sample, results across studies often fail to replicate or are completely contradictory. Special scales have not fared much better. Not only has there been inconsistency in finding significant differences between violent and nonviolent subjects, but complete reversals of the hypothesized direction of results have occurred. Part of the problem with this research, as noted earlier, is the dichotomization of subjects into violent and nonviolent groups. Keeping heterogeneity in mind, it is also not surprising that no single high-point pair has been identified as characteristic of violent offenders.

The assumption of homogeneity within groups is also apparent in much of the research completed with full profiles. Many studies report the mean profile within groups, and often these mean profiles fail to distinguish between violent and nonviolent groups. Inconsistency of results is also found in that the more pathological profile (i.e., higher overall elevation) is sometimes found in the violent group and sometimes in the nonviolent group, depending upon the composition of the samples studied (e.g., compare Valliant, Asu, Cooper, & Mammola, 1984 to Jones, Beidleman, & Fowler, 1981). However, the utility of comparing full profiles is not ruled out. Some recent research explicitly acknowledges the heterogeneity of

violent offenders, even within violent offence types (e.g., Anderson & Holcomb, 1983), and makes use of cluster analytic techniques, rather than comparing mean profiles. The most widely researched cluster types that have been identified appear to be those proposed by Megargee and Bohn (1979).

Megargee and his associates (see Megargee & Bohn, 1979) developed a typology of offenders using the MMPI. These authors anticipated that their typology would be superior to classification based upon offences, due to the problems previously noted regarding conviction data, and superior to classification based upon historical variables which would not reflect changes in individuals during the course of incarceration. They believed that the MMPI types would differ on a variety of characteristics, and that these differences would have implications for management and treatment. Using cluster analysis, they identified ten types in a medium security institution. They called the types Able, Baker, Charlie, Delta, Easy, Foxtrot, George, How, Item, and Jupiter. Next, they developed a set of classification rules based on profile elevation and shape. Once the classification system was refined, they applied the system to a multitude of MMPIs and began an investigation of the characteristics of the ten types. Some of the types were found to have higher 'self-reports' of violent acts than other types. Many of the types have been replicated using different populations (e.g., Mrad, Kabacoff, & Duckro,

1983), and the majority of MMPI profiles, including those of adolescents (Doren, Megargee, & Schreiber, 1980; Veneziano & Veneziano, 1986), are classifiable within the system. Certainly all of the research on this typology has not consistently produced the hoped for results in regard to either distinguishing between violent and nonviolent groups, or in predicting future violence. However, the types have been found to vary on a number of clinically relevant variables (e.g., Edinger, Reuterfors, & Logue, 1982). When Zager (1988) reviewed the literature on this typology, he concluded that "overall, the system appears to have demonstrated its reliability, validity, and practical utility" (p. 39).

As noted by Henderson (1983) "'habitual response characteristics', as measured by personality tests, are not sufficient to explain why (a) violent act occurred" (p. 677). Therefore, using the MMPI in isolation may not provide an accurate picture of its usefulness. In order to really test the utility of any typology in regard to violence prediction, it would appear necessary to determine the specific situations in which the violent types acted violently, and then to assure that the opportunity for violence within these situations was presented. The latter proposition is both unethical and unsafe. In the current study the MMPI was included in order to help to elucidate

the relationship between personality types and situations in which different types may act violently.

In addition to investigating the relationship of MMPI scores to situational factors, inclusion of the MMPI in the current study allows for comparison of MMPI profile clusters found in the present study to the Megargee types to determine their similarity. Profiles could also be classified with the Megargee system, and their relationship to violence in individual situations assessed.

A further reason for inclusion of the MMPI is that numerous special scales have been derived from it. Some of these scales may have utility in identifying violent individuals once homogeneous types of violent offenders are distinguished. Utilization of these scales to differentiate heterogeneous groups of violent and nonviolent persons may have obscured any usefulness that they hold. A case in point may be the Overcontrolled Hostility scale of Megargee, Cook, and Mendelsohn (1967). In a review of the research on this scale, Armstrong (1983) noted that many studies failed to make use of the two criteria that distinguish undercontrolled and overcontrolled types, instead comparing extremely violent to nonviolent or less violent individuals. When overcontrolled individuals were identified on the basis of having committed a single, extremely violent act, the results of the studies tended to be supportive of Megargee's theory.

Although the MMPI may provide a vast amount of data, full clinical assessments include more than one psychological test, and often include both objective and projective measures. Another objective measure that may have some utility in the assessment of aggressive behaviour is Davis' Interpersonal Reactivity Index (IRI; Davis, 1980), a multidimensional inventory of empathy. Rutter (1985) suggests that when empathy is well-developed and there is effective self-control under stressful conditions, that aggression is less likely to occur. Pulkkinen and Hurme (1984) suggest that adequate social cognition (role-taking, empathy) are presupposed in self-control. Impulsive expression of anger, associated with most violent acts (cf. Wolman, 1980), should be less frequent in those who have a capacity for empathy. Beyond these suggestions, there is some evidence that a lack of empathy is associated with aggressiveness. Over twenty years ago, Feshbach and Feshbach (1969) found a negative relationship between empathy (defined affectively) and aggression in elementary school boys. They suggest that empathy may inhibit aggressive acts, even if the instigator is the source of the pain in the other. Monahan and Klassen (1982) also suggest that the 'moral emotions' of empathy, guilt, and anxiety should act as counterforces against aggression, and suggest that the lack of capacity for such emotions is the hallmark of sociopathy. In a recent attempt to develop a scheme to

predict dangerousness, Menzies, Webster, and Sepejak (1985) found 'capacity for empathy' to have predictive power second only to 'tolerance'. These authors define 'capacity for empathy' as "the degree to which the patient is able to recognize the effect of his action on others .... his capacity for participating in the feelings of another individual" (p. 54). This definition appears to recognize that empathy is not unidimensional, but has cognitive (recognition) and affective (feelings) components. It is possible that these components could be differentially associated with different types of violence. Ohbuchi (1988) suggests that cognitive perspective-taking may either increase or decrease the likelihood of aggression dependent upon the perception of the instigator's motive as hostile or nonhostile. Further, Miller and Eisenberg (1988) suggest that increased personal distress could result in derogation of, or blaming of the victim of aggression. Therefore, empathy must be subdivided into cognitive, affective, and personal distress components.

Three of the four dimensions incorporated in Davis' scale may be of particular importance here: perspective taking, empathic concern, and personal distress. An individual with high empathic concern and good perspective taking may avoid involvement in violent offences. High perspective taking ability with low empathic concern could typify the glib psychopath. Low perspective taking and low



empathic concern could be associated with impulsive outbursts, and high personal distress could predispose to excessive emotional arousal (panic) in stressful situations that could result in violence.<sup>9</sup> A fight or flight response may be elicited in distressed individuals, and if flight was blocked, aggression might occur. Batson et al. (1983, cited in Brown, 1986) found that those who were distressed by witnessing another's pain elected to escape the situation, whereas those who showed empathic concern expressed the desire to take the victim's place. Although these patterns are highly speculative, use of a multidimensional scale of empathy would appear warranted.

Other objective tests which could be utilized include the Buss-Durkee Hostility Inventory. However, in regard to this test in particular, inconsistent results have been obtained in the discrimination between violent and nonviolent individuals (Holland, Levi, & Beckett, 1983), it has proved disappointing in relation to real aggression (Megargee & Menzies, 1971), and it has been criticized for being 'patently face valid and obvious' (Posey & Hess, 1984, p. 137).

To extend the assessment beyond the objective tests, it is useful to include projective measures. Aggression and hostility measures derived from the Rorschach have not fared

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<sup>9</sup> Taylor (1985) found panic to be a frequently identified motive for both psychotic, and particularly, nonpsychotic offenders involved in violent offences.

well. Megargee and Menzies (1971) note that content scores often lack subtlety. Given the greater motivation in correctional samples to distort responses, it is not surprising that many of the content scores have failed to correlate with a criterion. On a more formal level, it has been suggested that Space responses may relate to aggression. In a sample of medical students, Carlson and Drehmer (1984) found that primary Space responses (i.e., a percept related directly to a space area, as opposed to a percept primarily based upon other areas of the blot) did load on an anger-affect factor. They note, however, that it is not known how much this relates to overt behaviour. In contrast, Tegtmeyer and Gordon (1983) found that the number of Space responses given by nonclinical children was not related to the Elizur hostility level (a Rorschach content measure of resentment and enmity toward others), to hostility on the TAT, nor to aggression or delinquency as rated by parents. Martin, Pfaadt, and Makinster (1983) obtained a correlation of .20 between the Elizur content score and Space responses amongst university students. They suggest that the Elizur score is related to an aggressive or oppositional stance, but that no clear relation to overt behaviour, particularly in violent populations, has been found.

A study by Keltikangas-Jarvinen (1982) underlines the problem of trying to generalize from normal to deviant

populations. She found that violent penitentiary inmates did not score highly on Hafner and Kaplan's hostility scale, which is based upon Rorschach variables. Differences noted between a normal student sample and the violent inmates included more rejections of cards by the violent subjects, as well as shorter responses, little colour, and lower form quality in their records. Including comments from the inmates during their testing sessions, she concludes that these violent men suffer from an inability to fantasize (alexithymia). She found a similar response pattern on the TAT wherein the violent subjects gave short, here and now responses, with little emotion interjected. Less fantasy aggression was expressed on Aron's aggression scale for the TAT by the inmates as well. Unfortunately, she did not include a sample of nonviolent inmates. It is impossible to determine, therefore, whether the response style that she noted for the violent inmates is characteristic of inmates in general, or just of violent offenders.

Other problems are apparent with the TAT research. Cards can be scaled for their degree of 'pull' for aggression (Murstein, David, Fisher, & Furth, 1961), however, research on whether more aggressive subjects produce more aggressive stories to high- or to low-pull cards has produced inconsistent results. It has been suggested that aggression to high-pull cards is not discriminating, that aggression to low-pull cards is

indicative of aggressive tendencies, and that failure to produce an aggressive story to a high-pull card may be reflective of inhibitions against aggression (cf. Megargee & Menzies, 1971). Stein (1978) cites evidence for a relationship of aggression to aggressive stories on high-pull cards, which agrees with the results of Kaplan (1967) for a sample of university women. Murstein (1965) found no difference on high-pull cards between more and less aggressive subjects. He states that the relationship of aggression to aggressive stories on high- or low-pull cards may depend upon self-concept as hostile, and Megargee (1967) found a dependence upon inhibitions. Uninhibited-hostile individuals gave more aggressive stories to cards of all levels of pull, but were particularly differentiated from less hostile individuals and inhibited-hostile individuals on the low-pull cards. Although the hypothesized relationship, noted above, sounds tenable, the results obtained suggest a more complex relationship. Furthermore, the majority of this research has been conducted with university students who often rated their peers on friendliness, with the assumption that those rated as least friendly were the most hostile. Given the results of Keltikangas-Jarviven (1982), even if some consistency had been found in the studies with university students, it is not known whether these results would generalize to incarcerated populations. Overall, there appears to be

little direction regarding what to expect on either the TAT or the Rorschach in a violent population, and no research to suggest that violent and nonviolent incarcerates would be distinguished on these measures. For this reason, the TAT and the Rorschach were not included as measures in this study.

Wagner and his associates developed a projective device, the Hand Test, to assess action tendencies (Bricklin, Piotrowski, & Wagner, 1962). Subjects are presented with line drawings of hands in different positions, and 'project' what the hand is doing. Responses are classified into fifteen categories and an acting-out ratio can be calculated. Although appearing somewhat obvious, this test has shown some ability to discriminate between delinquents and nondelinquents (Oswald & Loftus, 1967; Wagner & Hawkins, 1964), and violent and nonviolent inmates (Brodsky & Brodsky, 1967). Brodsky and Brodsky (1967) suggested that although able to discriminate between groups, the test had little predictive ability. However, it did appear to have some potential to predict acting-out in adolescents within an institution (Azcarate & Gutierrez, 1969), and general recidivism in juvenile delinquents (Wetsel, Shapiro, & Wagner, 1967). Although responses on this test have not been definitively shown to be associated with violent behaviour, results across studies appear to have more consistency than those shown in studies using

either the Rorschach or the TAT. Furthermore, subjects similar to those included in the current study have been assessed with this measure and it has shown some promise of having clinical utility in this population.

Another projective test which has been researched with regard to aggression is the Draw-a-Person test (DAP). Many aggression indicators have been proposed for the DAP. Research utilizing these indicators has generally assessed the difference between groups for specific indicators (e.g., Daum, 1983). This procedure may not afford a fair test of the proposed indicators, as clinicians generally do not infer aggression on the basis of a single indicator. It may be more useful to determine the number or configuration of indicators present within each drawing (Megargee & Menzies, 1971). Regardless of the utility of the aggression indicators, however, the DAP can also be scored for indicators of impulsivity and nonimpulsivity. Oas (1984) found these indicators to identify impulsive and nonimpulsive adolescents with 'surprising accuracy' (above 90%). Impulsivity as indicated on the DAP may be associated with undercontrolled aggression.

An additional reason for including the DAP test is that it may not be as susceptible to faking as are some other measures. Although Posey and Hess (1984) concluded that the DAP test was not useful in the detection of aggressive tendencies, this conclusion may not be warranted given the

design of their study. These authors attempted to determine the susceptibility of various subtle and obvious measures of hostility and aggression to distortion by prisoners attempting to appear very aggressive or unaggressive. Comparison of means across groups was followed by a factor analysis which produced two factors. The second factor was virtually defined by the DAP test. This result prompted the authors to conclude that the DAP test could not be measuring aggression, as it failed to load on their first factor which they labelled aggressiveness-hostility. However, an alternative explanation for these results is that the first factor reflects susceptibility to faking,<sup>10</sup> and the failure of the DAP test to load on this factor can be interpreted as an immunity to faking. Results of the tests between groups suggest the same interpretation in that the DAP test was the only measure for which an F approaching zero ( $F = .09$ ) was obtained, which is sometimes interpreted as providing support for the null hypothesis.

Unfortunately, the results of the Posey and Hess study do not provide any evidence that the DAP test is measuring aggression. Degree of actual aggression or violence displayed by the subjects was not measured. All that can be concluded is that whatever it was measuring was not

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<sup>10</sup> The present author estimated the factor loadings that would result if only the between groups variance (i.e., variance due to faking instructions) had been utilized in the analysis. The resultant first factor was very similar to Posey and Hess' aggressiveness-hostility factor.

distorted by instructions to appear very aggressive or unaggressive.

Other person measures that might be included in individual assessments would be inhibitions against aggression, other than empathy, and idiosyncratic or rare triggering stimuli or signs. As noted by Megargee (1970, 1984), inhibitions may be difficult to assess, and rare or idiosyncratic features may be obscured in nomothetic research (Monahan, 1981). As Hammer (1981) notes, some indicators may occur infrequently and, therefore, tests between groups will not produce statistically significant differences, even if the specific indicator is almost always associated with a particular behaviour or diagnosis. Idiosyncratic features, such as specific delusions, may be impossible to elicit clearly in nomothetic research. Other than assessing empathy, therefore, no attempt was made to assess inhibitions, nor were rare or idiosyncratic features explicitly elicited.

#### Situational Measures

Magnusson and Endler (1977) suggest that the psychological meaning of an event or situation is important in determining the individual's behaviour. They suggest that there are individual differences which determine the cues in a situation that will be selected for processing, and that these selected cues must be combined with



situational cues forced upon the individual, and his or her motivators (e.g., needs, values, attitudes) in order to determine the meaning of the situation to the individual. It is suggested that individuals have consistent ways of processing situational contents and motivational factors. In this regard, Berkowitz (1977) suggests that some people characteristically quickly define events as aggressive.

Evidence for this suggestion comes from a study by May (1986) who found that high school students who reported more involvement in violent acts detected more violence in tachistoscopic slide presentations than those who reported less violence involvement. Additionally, Milich and Dodge (1984) found that aggressive boys were more likely to attribute hostile intent to a peer than nonaggressive boys under ambiguous provocation circumstances. The effect was detected in open-ended responses, but not on a forced-choice attributional task. Dodge and Newman (1981) noted that the perception of more hostile cues occurred when aggressive boys made rapid responses to situations, and that selective recall of more hostile cues was related to the attribution of hostility. The quick response influence suggests that those with an aggressive history who respond impulsively, without waiting to process all of the available information, are prone to attributing hostile provocation where none may exist.

May (1986) suggests that the selective attention to hostile cues found amongst more aggressive individuals could arise as a result of chronic exposure to violent acts or interpersonal violence. He cites Dixon (1981) in suggesting that this pattern may have adaptive value for survival and coping. This is one route by which the commonly noted historical factor of child abuse may be related to later violence."

Additionally, it has been found that aggressive children produce more aggressive and fewer assertive responses to situations than do nonaggressive children (Lochman & Lampron, 1986), particularly in response to situations involving ambiguous provocation (Milich & Dodge, 1984). Furthermore, aggressive children rate aggressive responses more favourably (e.g., 'good', 'wise', 'brave') than assertive children do. Aggressive children express a preference for more aggressive modes of action, as indicated in their considering these actions to be what they 'should do', and would 'feel best' doing (Deluty, 1983). These results suggest that aggressive responses are more salient in the aggressive child's response repertoire, and therefore, should be elicited more quickly than other response options when they are asked to respond to

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" For example, Kellert and Felthous (1985) found that 75% of aggressive criminals in their sample reported excessive and repeated child abuse. Rates were considerably lower for non-aggressive offenders.

hypothetical situations. Whether or not the initial response option is acted upon will depend upon the facilitators and inhibitors in the immediate situation.

Most aggression appears to be related to anger, perceived provocation or insult. However, direct insult or other provocation does not inevitably result in an aggressive act. Other elements in the situation act to increase or decrease the probability of an aggressive response. Some of these factors include: the number of persons present, and whether they are supportive of the provocateur or of the respondent; whether the provocateur is known to the respondent or is a stranger to him; whether the insult is directed at the respondent, or at a friend of the respondent; whether the potentially provocative act was intentional or accidental; the status of the provocateur in regard to authority or dominance; the setting (e.g., home, school, institution, party); and whether or not alcohol or drugs have been ingested by the parties. Although all of these factors may influence the likelihood that a violent act may occur, a search of the literature failed to locate a measure that varied these factors. Therefore, a series of situational vignettes were designed specifically for this study and the population being studied. Obviously, attempting to design situations incorporating all possible combinations of the factors noted above would be an unwieldy task, and would produce an excessively long instrument.

Therefore, an attempt was made only to sample from the possible combinations, using situations that could be easily imagined by the youth, and that were likely to be similar to situations that they had encountered in the past.

#### Offence measures

Within correctional settings, clinicians who were requested to assess violence-potential would generally have access to conviction data. They would interview subjects with regard to the circumstances of and influential factors related to past incidents of violent behaviour. Although other methods of determining an individual's history of violent behaviour (e.g., intrainstitutional records) or degree of aggressiveness (e.g. peer nominations) may provide more accurate data than either criminal convictions or self-report, these measures may not be routinely available to clinicians. For this reason the literature regarding the utility of these measures is not reviewed.

The problems inherent in the use of offence records has been discussed above and will not be repeated here. It is known that these records represent a vast underestimate of the actual amount of violence perpetrated, but they do provide an objective measure of behaviour.

As mentioned above, the assessment of violence-potential includes a determination of the likelihood that situational factors related to past acts of violence will

prevail in the future. Certainly those factors noted above to be associated with violence should be assessed with regard to past offences. Ideally these factors would be assessed not only with regard to their presence or absence, but with regard to their strength in determining the actions of the individual.

#### *Intention and design of the current study*

This study comprises an attempt to identify homogeneous person-situation clusters of young offenders that may aid in the assessment of violence-potential. Prior research has identified numerous personality characteristics and situational factors that are associated with violent behaviour. This study not only incorporates numerous of these factors, but does so by utilizing measures that are common to or readily incorporated into clinical assessments. An attempt is made to mimic, as closely as is possible, those procedures that would be followed for individual cases.

Initially, homogeneous clusters of individuals need to be identified. These clusters should reflect not only the personality characteristics of the individuals, but the relationship of these characteristics to their behaviour in specific situations. To this end, scores on the MMPI clinical scales are cluster analyzed in combination with the responses to the situational vignettes.

Given the emergence of homogeneous clusters, it is expected that these groups would differ on such factors as impulsivity, components of empathy, specifics of situations in which they would behave violently, and official offence histories. Identification of the types and description of associated characteristics may have implications for treatment as well as providing some data regarding violence-potential (albeit postdictive). Follow-up potential for these subjects provides the opportunity to collect recidivism data for the identified types without the problem of nonrelease of individuals considered to be dangerous, and while the subjects remain within the age-group identified as having the highest base rate for violence.

## METHOD

### Subjects

The subjects in this study were male young offenders who were either detained in juvenile correctional facilities or were required to reside at an attendance program under a probation order. More than four hundred youth were approached and asked to participate in the study. Only those youth who were suffering from significant neurological impairment (e.g., fetal alcohol syndrome or brain damage due to solvent abuse) or were heavily medicated, were not approached (5 youths). Approximately one-third of the youth declined to participate. A further 7 percent were either transferred to another facility or released before they could be seen.

A total of 249 subjects completed some portion of the study. Critical data (i.e., MMPIs or responses to the situational vignettes) were incomplete for 27 subjects, leaving a total of 222 subjects. The youth ranged in age from 12 to 19 years. The mean age was 16 years (mode and median were both 17). Seventy-two percent of the subjects were Caucasian, 15 percent Native Indian, and 13 percent of other racial backgrounds. Subjects included youth who were contained, on remand, or on probation (at an attendance program). All but one youth had convictions for a criminal

offence. As this youth had been diverted to an attendance program, participation in prior criminal activity was implied. Eighty-six percent of the subjects had been convicted of one or more property offences; 45%, one or more person offences; 72%, one or more order offences;<sup>12</sup> 23%, one or more automobile offences; 9%, one or more sexual offences; and 9%, one or more drug offences.

Although, as noted above, conviction data under-represents the amount of violence actually perpetrated, those youth who are more seriously or consistently violent are more likely to obtain convictions. Therefore, the fact that 45 percent of this sample have been convicted of one or more violent crimes suggests an almost optimal base rate for the prediction of violence within this sample.

### Settings

Subjects were obtained from a variety of correctional settings in the Lower Fraser Valley in the Province of British Columbia. Institutions were of both open and closed custody types, and also included a residential program. Youth were seen at the Willingdon Youth Detention Centre, Boulder Bay Youth Custody Centre, Centre Creek Juvenile Containment Program, Holly Cottage Containment Centre,

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<sup>12</sup> This category includes offences such as breaches, escapes and mischief.



Burnaby Community Containment Centre, and the House of Concord. Youth are frequently transferred amongst these institutions depending upon their specific needs and their conduct.

The number of youth assessed at each facility was as follows: Willingdon Youth Detention Centre, 55; Holly Cottage Containment Centre, 20; Centre Creek Juvenile Containment Program, 40; Burnaby Community Containment Centre, 4; Boulder Bay Youth Custody Centre, 55; House of Concord (attendance program), 48.

## Instruments

### *Person measures*

As noted above the MMPI may be the most frequently utilized instrument in assessments within the criminal justice system. An immense body of literature compiled over its almost fifty years of use addresses issues of validity, stability, and interpretation. Although the MMPI has been used with adolescents for a number of years, only recently have a number of issues regarding its use with this population been addressed.

A comprehensive text on the use of the MMPI with adolescents was recently published by Archer (1987). He notes that response patterns differ between adolescents and adults, particularly affecting the elevation of scales F, 4,

and 8. Clinical correlates associated with scale elevation differ for adults and adolescents, and methods of determining the validity of adult profiles do not always apply to adolescent profiles. Furthermore, it has been found that the factor structure of the MMPI more closely resembles that found in adult samples when adolescent norms are used in analysis of profiles from this population. Also, clinical descriptions of adolescents are considered to be more accurate when based on adolescent rather than adult norms. For these reasons, as recommended by Archer, adolescent norms were used in the present study. Also, profiles were not rejected as invalid based on the F scale elevation criterion used in studies of adults.

The Draw-a-Person (DAP) test was included in the study as a measure of impulsivity. Subjects are requested to draw a picture of a whole person. Once they have completed this drawing they are asked to draw a second person, this time of the sex opposite to that drawn first. Time to completion for each drawing is recorded. Responses to subjects' questions either reiterate the instructions or are non-directive. These procedures allow for an assessment of impulsivity by presenting few directions and little structure with regard to the product. Drawings are then scored for such factors as time to completion, and amount and quality of detail included.

Using this method Oas (1984) found this test to identify impulsive and nonimpulsive adolescents with accuracy exceeding 90 percent. Impulsivity scores were related both to other measures of impulsivity and to behavioural ratings made by blind raters.

The Interpersonal Reactivity Index (IRI) is a 28 item multidimensional self-report measure of empathy. In contrast to unidimensional scales which may assess either cognitive or affective components of empathy, these components are measured along with fantasy and personal distress on the IRI. Davis (1980) reports internal reliability coefficients for the various scales ranging from .70 to .78. Test-retest reliability coefficients for a 60 to 75 day interval range from .61 to .81, and the scales have been found to be relatively independent (intercorrelations not exceeding .33). Following the initial development of the scale, Davis (1983) explored the convergent and discriminant ability of the scales. Expected relationships with previous unidimensional empathy measures and with self-esteem, emotionality, social competence/interpersonal functioning, intelligence, and sensitivity to others were supported.

The Hand Test is a projective device designed to assess action tendencies (Wagner, 1983). Subjects are presented with 10 cards, 9 of which contain simple line drawings of hands in various positions. The final card is blank. The

examinees 'project' what the hand is doing. Based on the central role that hands play in our interactions with and relationship to the external world, responses are expected to have behavioural implications. Responses can be scored both quantitatively and qualitatively, however, most of the research on this instrument focuses on the quantitative scores. Responses are classified into fifteen categories which are then grouped into interpersonal, environmental, maladjustive, and withdrawal response categories. Particular ratios of scores are considered to have clinical implications, and an acting-out ratio can be derived.

As reported above, the Hand Test has shown some discriminative and predictive ability. As a projective device, in general, it has shown expected developmental response changes from childhood through to old age (Panek & Rush, 1985; Stoner, Panek, & Satterfield, 1982; Stoner & Spencer, 1984). Furthermore, some convergent validity has been demonstrated with the High School Personality Questionnaire in an acting-out adolescent sample (McGiboney, Carter, & Jones, 1984). It has also been found to have reasonable test-retest and split-half reliabilities (McGiboney & Carter, 1982; Panek & Stoner, 1979; Stoner, 1985; Wagner, Alexander, Roos, & Prospero, 1985; Wagner, Maloney, & Wilson, 1981). Percentage of agreement for scorers given only the manual as a guide ranged from 78 to 83 percent with most of the disagreements occurring within

rather than between the combined categories (Wagner, 1983). Although recommended for use within a battery of tests, research with the instrument appears not to have included it within a full clinical assessment.

### *The situational vignettes*

Based on the situational factors previously identified as influencing the probability that a violent act would occur, situational vignettes were designed that could be easily imagined by the youth, and that were likely to be similar to events that they had previously encountered. Factors varied included the type and severity of the provocation; the location of the incident; the status of the provocateur; the presence of alcohol, drugs, and weapons; and the number of individuals present.

It has also been noted by Megargee that some acts of aggression are instrumental. An attempt was made to include situations in which aggression might be used to gain some other advantage (e.g., noncompliance with a request). It could also be argued that responses could vary for situations calling for pro-social action, therefore, situations of this type were also included.

Residents at the Maples Adolescent Treatment Centre (with the approval of the administration) took part in a pilot study of the situational vignettes. Subjects responded to 51 situations. Order of presentation was

determined by first randomizing the items, then adjusting to ensure that factors such as location and type of instigation did not clump together. Item wording was refined based on the responses of the pilot subjects, and 16 items were dropped. Items were dropped if they appeared redundant, failed to distinguish amongst subjects when expected, or appeared not to reflect situations that the youth were likely to have encountered. Five of the remaining situations, with minor adaptations, were taken from the 24 situations developed by Campbell, Bibel, and Muncer (1985). The final 35 situations used in the study included at least 2 instances of each factor varied (e.g., 2 situations wherein institutional staff were the instigators) (see Appendix A).

In order to avoid constraining the responses, and to avoid recognition of a pro-social set, subjects were asked to provide free responses to the situational vignettes which were read to them. They were asked to indicate what they would do and how they would feel if they were in a similar situation. Components of answers that were not spontaneously reported were specifically requested (e.g., "And how do you think you would feel?"), and requests for elaboration of colloquial terms were made. All prompts were non-directive. Responses were scored for the degree of aggression and/or the potential for escalation of violence. The scoring system used was an adaptation of the system

designed by Campbell et al. (1985). Feelings in the situations were utilized to differentiate between responses such as playful, 'horsing around', and aggressive acts. Responses were scored for the initial response given by the subject, and not for further elaborations of the story (see Appendix B for detailed information regarding the scoring system). Subjects were also asked to indicate if they had ever been in a similar situation and if so, how often (i.e., never, once or twice, three to five times, six to ten times, more than ten times).

#### *Offence measures*

Subjects were interviewed regarding past criminal activity. They were requested to describe three offences for which they had been convicted. Questions were based upon those factors thought to be related to violence within situations (see Appendix C). Additionally, Correction's case histories for each youth were obtained. All convictions were counted and subdivided into categories of person, property, order, sexual, automobile, and drug offences (see Appendix D for a list of the specific charges included in each category).

## Procedure

Permission to conduct this study was granted by the Simon Fraser University Ethics Committee, and by Dr. Peter Hotz of the Ministry of the Attorney General, Corrections Branch, Province of British Columbia. Additionally, access to subjects was granted by the director of each of the institutions approached for the study. His Honour, D. R. Campbell, Administrative Judge, Vancouver Family Court, Province of British Columbia, granted access to the youths' records under the Young Offenders Act, for the purpose of recording criminal convictions. Subjects were assured of the confidentiality of their responses, and signed consent forms for participation in the study.

Small groups (2 to 9 subjects) were formed for completion of the MMPI and the IRI. The items on the MMPI were audio tape recorded and administered in this manner. The IRI items were read individually by the subjects. Approximately one-half of the subjects completed the MMPI and the IRI prior to individual meetings with the interviewer. During the interview, the examiner administered the DAP test followed by the Hand Test, and the situational vignettes. Finally, subjects were requested to describe past criminal offences. Following all contact with the subjects, Correctional case histories were obtained from institutional staff. Group administration of the MMPI and



IRI scale was completed in approximately 1 hour and 15 minutes, and interviews averaged 1 hour.

MMPiS were computer scored producing non-K-corrected age norm scores (Dahlstrom, Welsh, & Dahlstrom, 1972). No subjects were dropped due to excessive elevation on the F scale. Research suggests that adolescents who obtain elevated F scores are not necessarily producing invalid profiles (Archer, 1987; Gallucci, 1987). Scores for the 4 scales on the IRI were obtained using a descriptive statistics program.

The DAP test was hand-scored according to the criteria presented by Oas (personal communication). Scores for impulsivity and non-impulsivity were obtained. A random sample of these items were scored by a second rater. Pearson Product Moment correlations for impulsivity and non-impulsivity based on 30 subjects produced coefficients of .92 and .88 respectively. Standard errors of the means were .66 and .61, on a scale of 13 for each measure.

Responses to the Hand Test were scored according to the manual produced by Wagner (1983). Basic categorical scoring was used, and no additional scales were included. A random sample of 30 protocols, representing 485 responses, were scored by a second rater. Inter-rater reliabilities as assessed by Kappa were .68 for individual categories, and .75 for higher level groupings. Chance agreement for the individual categories and for the higher level groupings

would be .14 and .41 respectively. Total agreement between the two raters for the individual categories and the grouped scores were 72 and 85 percent respectively.

Responses to the situational vignettes were scored according to a system adapted from that designed by Campbell et al. (1985). Their scale was reversed, making higher scores indicative of more violent behaviour, and the scale was extended from 10 to 14 scores. Although scores across situations would be similar in scoring, scores were allowed to vary in meaning dependent upon the situation involved. The scoring system is described in Appendix B. A random sample of 40 protocols were scored by a second rater. Inter-rater reliabilities based on Pearson Product Moment Correlations for each situation are as follows:

Table 1: Inter-rater reliabilities for the situations

Situation 1	.93	Situation 19	.91
Situation 2	.87	Situation 20	.94
Situation 3	.92	Situation 21	.72
Situation 4	.98	Situation 22	.91
Situation 5	.86	Situation 23	.96
Situation 6	.94	Situation 24	.83
Situation 7	.93	Situation 25	.87
Situation 8	.87	Situation 26	.82
Situation 9	.96	Situation 27	.89
Situation 10	.78	Situation 28	.76
Situation 11	.86	Situation 29	.96
Situation 12	.97	Situation 30	.89
Situation 13	.94	Situation 31	.86
Situation 14	.93	Situation 32	.90
Situation 15	.95	Situation 33	.91
Situation 16	.83	Situation 34	.91
Situation 17	.98	Situation 35	.78
Situation 18	.92		

As many youth described non-violent offences when interviewed, and some youth (particularly sexual offenders) declined to describe their offences, these items were not scored. Only those offences for which youth had received criminal convictions were counted with regard to specific offences. Offences were categorized under person, property, automobile, order, sexual, and drug types (see Appendix D).

## RESULTS

The proposed analysis of this data began with cluster analysis including the 10 clinical scales from the MMPI and the response scores for the 35 situational vignettes. Given the inherent instability of cluster solutions, a variety of clustering methods and/or programs were to be utilized. Once stable clusters had been identified with the cluster analysis, some confirmation of the underlying structure of the data could be gained with factor analysis. Finally, a discriminant analysis would be conducted utilizing cluster membership and assessing the manner in which the other personality measures (i.e., Hand Test, DAP, IRI) and criminal convictions distinguished amongst the groups.

As a first step for the analysis, descriptive statistics for the MMPI and situations were obtained. Means and standard deviations for the MMPI scales and the situations are presented in Tables 2 (p. 59) and 3 (p. 60).

Considerably more variability was noted for the MMPI scales than for the situations, therefore, situations scores were multiplied by 4 to equate the variances. These data were entered into iterative relocation programs. Results using both the SPSS and BMDP statistical programs suggested that there were no more than two clusters in the data when the Calinski-Harabasz "variance ratio criteria" was utilized (cf. Wishart, 1978). This index represents the ratio of

Table 2: MMPI means and standard deviations

Variable Name	Mean	Standard Deviation
Q	8.05	14.28
L	45.98	9.21
F	68.54	16.33
K	44.66	10.33
1 Hs	59.05	12.06
2 D	57.70	10.48
3 Hy	55.18	10.08
4 Pd	67.57	10.40
5 MF	55.26	9.79
6 Pa	62.00	12.19
7 Pt	59.98	12.97
8 Sc	62.47	13.35
9 Ma	66.61	9.84
0 Si	48.71	10.81

between subjects to within subjects variance for predetermined numbers of clusters and is compared across different cluster solutions. It cannot be used to determine whether there are one or two clusters in the data. Separating the data and analyzing the MMPI alone and subsequently the situations alone produced a similar pattern of results. Additionally, standardizing the data had little effect on the results.

As iterative relocation techniques perform better when initial cluster membership is provided (Milligan & Cooper, 1987), the MMPI data was re-analyzed using the means from the Megargee types as cluster seeds. This procedure forced a 10 cluster solution. Comparison of the quasi-F ratios obtained to those obtained using random entry points suggested that the clustering was reverting to the original solution. When the program was rerun requiring no update of

Table 3: Situation means and standard deviations

Variable Name	Mean	Standard Deviation
Situation 1	7.89	3.24
Situation 2	8.04	3.03
Situation 3	4.73	2.59
Situation 4	9.39	3.38
Situation 5	4.81	2.05
Situation 6	10.10	2.92
Situation 7	1.84	1.60
Situation 8	5.08	2.49
Situation 9	7.20	4.00
Situation 10	6.57	3.17
Situation 11	7.69	2.56
Situation 12	6.06	3.00
Situation 13	5.37	3.75
Situation 14	9.35	2.45
Situation 15	3.94	1.97
Situation 16	7.56	2.64
Situation 17	2.27	1.23
Situation 18	8.84	3.14
Situation 19	7.01	2.54
Situation 20	4.42	3.24
Situation 21	8.59	1.76
Situation 22	8.06	3.59
Situation 23	5.99	2.10
Situation 24	3.68	2.24
Situation 25	6.00	2.13
Situation 26	5.27	1.53
Situation 27	6.96	2.88
Situation 28	3.81	1.81
Situation 29	10.07	2.96
Situation 30	2.52	1.14
Situation 31	6.65	2.70
Situation 32	5.95	3.29
Situation 33	4.91	1.89
Situation 34	6.50	3.15
Situation 35	1.43	1.77
Across situations	6.13	1.09
Consistency (sd)	3.33	0.60

new cluster means, comparison of the quasi-F ratios suggested that seeding with the Megargee means resulted in less variance being explained than if random entry points were used.

Review of the quasi-Fs produced when the MMPI and situations were combined for the cluster analysis, and when they were separated, suggested that different variables were accounting for cluster membership under these conditions. This result suggests that using either personality or situational measures alone will result in different conclusions than if person by situation interaction effects are assessed. However, in all cases the results suggested that there were no more than two clusters in the data. Although it could not be determined whether there were one or two clusters, the pattern of results obtained for the Calinski-Harabasz index over two to ten cluster solutions suggested that hierarchical clustering techniques would be more appropriate for this data (Wishart, 1978).

A number of combinatorial methods and distance metrics are available for use in hierarchical cluster analysis. Many of the methods exhibit chaining when large populations are involved (Milligan & Cooper, 1987; Wishart, 1978). For this reason, these methods were excluded and only average linkage and Ward's minimum variance method were attempted. The average linkage method, or unweighted pairwise group mean average (UPGMA), tends to find spherical clusters, and produces clusters with approximately equal variances. It is relatively insensitive to extreme values, but combines clusters with small variances. Ward's method produces minimum variance spherical clusters. It is more sensitive

to outliers, combines clusters with small sample sizes, and produces clusters with approximately equal Ns. However, it is less effected by group overlap. Also, in a monte carlo study of MMPI profiles, it was able to determine the correct number of clusters in the data (Blashfield & Morey, 1980). In most cases, squared Euclidean distances are used as the distance metric. In some cases, Euclidean measures have been used in order to adjust for possible extreme values.

As with the iterative relocation analyses, hierarchical clustering was conducted using the MMPI data and the situational data both independently and combined. Using both squared Euclidean and Euclidean distance measures, and average linkage and Ward's minimum variance methods, results for all analyses suggested no more than two clusters. Standardizing the variables did not alter the results, nor did a reduction in the number of variables entered (which would control for irrelevant variables when only those variables found to discriminate in the iterative relocation analyses were included).

In order to move beyond hypothesized actions of youth in situations in which they had never found themselves, situational scores were weighted by the frequency with which the youth had indicated that he had encountered a similar situation. Weights used were 0 for never, 1.5 for one to two times, 4 for three to five times, 8 for six to ten times, and 12 for more than ten times. Again the results



suggested no more than two clusters. Utilizing the mean score across situations (as an overall measure of aggression) and the standard deviation of subject scores across situations (as a measure of individual consistency) also failed to alter the results.<sup>13</sup> As the cluster results may be dependent upon which variables are included in the analysis, a variety of combinations of the MMPI and/or situation scores with the other personality measures or the offence totals were attempted. Again the results were similar.

It has been suggested that analysis of MMPI data be separated into characteristics of shape, scatter, and dispersion. In Modal Profile Analysis, profiles are first clustered based on shape (Skinner, 1978). Utilizing distance measures of correlation or cosine will produce clusters based on shape (Wishart, 1978). Including the MMPI and situation data, and using the correlation method, clusters were formed with the BMDP program. This program forces a centroid linkage method which is prone to chaining. The results did show chaining, therefore, not producing clear clusters. Using cosine as the similarity metric with the SPSS program again produced a result suggesting no more than two clusters whether the data was left in raw score form or standardized. It is suggested that the results

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<sup>13</sup> It may be suggested that those persons who display more cross-situational consistency are more predictable.

using standardized or unstandardized data could be radically different (Wishart, 1978), however, in this case no basic difference was noted.

For all hierarchical cluster analyses the Inverse Scree Test was utilized to determine the number of clusters to retain.<sup>14</sup> Regardless of the combinatorial method or the distance metric used, the results tended to suggest no more than two clusters. It was hypothesized that if the agglomeration measures tended to artificially separate data into clusters, that the Inverse Scree Test might tend to suggest two clusters even if only one was present. Although evidencing a greater distance from 2 to 3 clusters than was evident for the remainder of the plots, the plots tended to be curvilinear, rather than showing a distinct change in direction. The obtained plots were similar to those presented by Lathrop and Williams (1989) for artificial data which contained no clusters, suggesting that there were no disjoint clusters in the data.

Another method of determining the underlying structure in a data set is factor analysis. A principle components analysis was conducted on the correlation matrix including

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<sup>14</sup> Although some indices exist that test whether there are one or two clusters in the data, they are not readily available. They are included in individual agglomeration programs of which more than 100 are in existence. None of these indices are included in the SPSS or BMDP programs. Most of the indices that have been developed to determine the number of clusters to retain implicitly compare between groups to within groups variance.

the data from the MMPI and the situations. Two factors were obtained. The first factor had high loadings for the MMPI scales, and the second factor for a number of the situations. Using the covariance matrix, leaving the data unstandardized, produced one factor with high loadings for the MMPI scales. Weighting the situations by the frequency with which the youth said that he had encountered similar situations, and conducting a principal components analysis on the correlation matrix, again produced two factors, one for the situations and one for the MMPI. When the MMPI data and the situation data were analyzed independently, using the covariance matrix, each produced one factor. These results suggested some independence between the MMPI scores and the situational scores. However, it was noted in all cases that little of the variance was explained (less than 25%). Certainly with regard to the situations, considerable independence was noted, suggesting that most of the situations would need to be included in order to explain a reasonable amount of the variance. These results, therefore, were not helpful in determining the underlying structure in the data and it remained unclear as to whether to expect one or two clusters in the data.

In order to assess the degree of independence, and conversely the redundancy, in the MMPI data and the situations data, canonical correlations were conducted. When the situations were compared to the MMPI, two canonical

variates were significant. The MMPI scales and situations that were indicating redundancy across the measures were different from those that were suggested by prior analyses to be distinguishing amongst any possible clusters. As some redundancy was noted to be present across the situation and MMPI data, an analysis was conducted to see if these variables would distinguish amongst types of offence. When the situations and MMPI were combined, a distinction was found between sexual and other offences. However, little of the variance in offences was explained. Again, separating the MMPI and situational data produced similar results, suggesting some distinction between sexual and other offenders. As little of the variance in offences was explained using any of these combinations, it was determined that a visual presentation of the data be conducted. This included viewing a variety of variables in three dimensional space, and distinguishing the sexual from other offenders.

In order to determine which variables to view visually, the quasi F's from the initial iterative relocation analyses were reviewed. The variables which explained the most variance when the MMPI and situational data were used independently and in combination were chosen for viewing. Utilizing the SYGRAPH program, scores were plotted in three dimensional space. In all cases plotting of the data and rotation of the data in space did not show any clear clusters in the data. Additionally when the sexual

offenders were distinguished on the plot, they were scattered amongst all of the other points, not showing any clear separation from those points indicative of persons having committed other offences.

Overall, the results of these analyses in combination with the graphical presentation of the data, suggested that there were no distinct clusters in the data. Given the failure to identify types with the MMPI and situational data used either independently or in combination, subsequent planned analyses were not conducted.

## DISCUSSION

In contrast to previous research that used cluster analytic techniques to define types of offenders with the MMPI, this study failed to produce any clear cluster types. A number of methodological, purely statistical, and substantive reasons may be proposed for this disparity in results. A discussion of the possible reasons for the disparity in results will be followed by implications of the results of the present study and recommendations for future research in the area of the assessment of violence-potential.

Restricting the discussion, for the moment, to studies incorporating MMPI data, the commonly appealed to argument of sample differences is certainly applicable in this case. In regard to the Megargee-Bohn typology, clustering has been replicated at institutions with different age groups, and at different security levels (Zager, 1988). In the present study, subjects were adolescents, volunteers, and there was no control of length of incarceration. The subjects were not restricted by institution, that is, by security level, nor was the sample restricted to a particular offence type. While restriction of the subjects to volunteers could act to make the sample more homogeneous, inclusion of subjects from a variety of institutions should act to render the sample more heterogeneous. In contrast to other studies, few

restrictions were made with regard to the sample. Note that in other studies MMPIs are often administered at the time of admission, although this is not always the case. Many studies restrict samples to offenders who have committed a particular type of offence, such as sexual offences, homicide, or alcohol related offences. In most cases subjects are drawn from a single institution, with a restricted security level. When individual clinical assessments are conducted, however, there is no restriction placed on the institution in which the person is detained, nor on the particular offence that he has committed. Individuals may be assessed at various times during their incarceration, and they may refuse to undergo psychometric testing. Therefore, this sample may be representative of those individuals who agree to undergo psychometric testing when they are required to partake in an assessment.

In addition to differences in sample characteristics, analyses differ across studies. In most, but not all studies, Ward's minimum variance method has been utilized. In some cases data has been standardized, and distance measures differ. According to Milligan and Cooper (1987), the latter may have little effect on the results. However, if natural clusters exist in the original data space, standardization may distort the results. In the study of Smith, Monastersky, and Deisher (1987), principle components were utilized as data for the cluster analysis. Again,

according to Milligan and Cooper (1987), this procedure may be problematic if, in fact, the clusters exist in the original data space. Studies also vary with regard to entry of raw data scores, K-corrected T scores, or non-K-corrected T scores. Given the sensitivity of cluster analysis to the metric used, changes in the particular scores entered render many studies noncomparable.

It is also noted that this study comprised a larger sample than most previous studies. According to Hair, Anderson, and Tatham (1984), clustering algorithms tend to perform more poorly as the sample size increases. However, if robust clusters existed in the data, small increases in sample size would not be expected to reduce cluster recovery to nonexistence. Further, Milligan and Cooper (1987) note that outliers from the clusters, which may occupy space between clusters, tend to reduce the recovery ability of clustering techniques. Unfortunately, visual inspection of the data will not solve this difficulty. Also, simulation studies that create outliers between groups may not be indicative of real world data. It is likely that the intermediates in real world data are, in fact, legitimate members of the multivariate space, and truly lie between artificially constructed cluster centres. It is also possible that the clusters may overlap in the data. Unfortunately, unless the structure of the data is known in advance, one cannot choose between algorithms that create



disjoint versus overlapping clusters. Also, according to Milligan and Cooper (1987), little research has been conducted on those algorithms that produce overlapping clusters.

An additional problem noted in the literature is an over-reliance on previous non-independently replicated research. Rather than testing for the number of clusters present in the data, some researchers force the minimum number of groups based on past research which has not been independently replicated (e.g. Saltstone & Fraboni, 1990). As all clustering algorithms will produce results, regardless of the presence or absence of structure in the data (Milligan & Cooper, 1987), these studies fail to address the question of how many clusters actually exist in the data. Furthermore, it appears that few studies have addressed the issue of two versus one cluster in the data. For example, Hall, Graham, and Shepherd (1991) appear to have obtained results similar to those of the current study. Using Ward's minimum variance method and UPGMA, they determined that two clusters existed in the data. They make no mention of addressing the possibility that there were no distinct clusters in their sample of sex offenders.

With regard to the Megargee-Bohn typology, it is unsurprising that this study failed to replicate the ten types found by Megargee and Bohn (1979). First, the samples differed in that Megargee and Bohn studied young adult

offenders within a medium security facility. Subjects in the current study were adolescents and were not restricted to a particular security level. Megargee and Bohn entered adult norms with K-corrections into the cluster analysis, whereas in the present study, non-K-corrected adolescent norms were used. It is noted that although adolescent MMPI profiles can be classified with the Megargee-Bohn system, the distribution of types differs depending upon the norms used, and the distributions for adolescents differ from those of adults. In fact, a large proportion of adolescent subjects tend to be classified into two or three of the Megargee-Bohn types. For example, Doren, Megargee, and Schreiber (1980) found that 60 percent of their juvenile probation sample were classified into types Item and Able (44% and 16% respectively). Veneziano and Veneziano (1986) found that 42 percent of their adjudicated, institutionalized adolescents had type Item profiles. A further 20 percent were classified as type How, and 6.4 percent as type Able. In the present study, 23 percent of the adolescents would be classified as type Able and 27 percent as type Item. No more than 8 percent of the subjects would be classified within any of the other types. These results suggest that 50 to 60 percent of adolescent offenders would be classified as either type Able or type Item. It is noted that type Able is defined by a 49 high point code. Although type Item is defined primarily by non-

clinical elevation, the two highest scales in the mean profile are in fact scales 4 and 9 (Megargee & Bohn, 1979). These types combined represented 36 percent of the profiles in Megargee and Bohn's sample, and they note that more individual variation is found in type Item than in any of the other groups. The heterogeneity found within type Item, in conjunction with its similarities to type Able<sup>15</sup> presents difficulties for cluster analytic techniques. Clustering algorithms are often biased toward finding spherical clusters with either equal variances or equal Ns. Therefore, this heterogeneity is not fortuitous with regard to cluster analysis methods.

Many authors have proposed clustering techniques as a method of typing offenders in response to the heterogeneity noted in 2 point code types on the MMPI (Kalichman, Szymanowski, McKee, Taylor, & Craig, 1989). They note that the code types themselves fail to differentiate between offender types. Furthermore, within clusters obtained, a variety of 2 point code types are found. Certainly the heterogeneity of code types is also evident in the present study. Although the Megargee-Bohn system would classify 50 percent of the subjects within 2 types, more or less characterized by a 49 code, only 16 percent of the subjects actually obtained a 49/94 high-point pair. The problem

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<sup>15</sup> Also note the overlap in these types found by Mrad et al. (1983) in their validation study of the Megargee-Bohn typology.

often ignored in these studies is the notoriously inadequate use of criminal convictions to determine offence type. Classifying by a conviction, therefore, is highly problematic, and may tend to distort the groups found. Individuals with similar MMPI profiles may be more similar than would be suggested by their criminal histories. Typing by conviction may obscure similarities between offenders, and may also create gaps in the data when only one offence type is viewed. These gaps may reflect differences in who is caught and convicted of an offence, rather than differences in personality make-up.

Moving to the situation data, other statistical factors may explain the results. Hielbrun (1990) suggests that the use of squared Euclidean as a distance metric is inappropriate when variables are interrelated. Certainly, this is the most widely used measure in studies with the MMPI scales. However, results of the present study did not differ when Euclidean or cosine were used as the distance metrics. With regard to the situations, this problem does not apply, as the factor analysis of the situations suggested that they were in fact highly independent. In this case, the failure of these variables to cluster may reflect incorporation of irrelevant variables. However, dropping those variables that failed to contribute to the clustering in the iterative relocation analysis did not alter the results. It is noted that iterative relocation

methods are less sensitive to the inclusion of irrelevant variables (Milligan & Cooper, 1987). It may also be suggested that subjects may cluster more on the basis of overall measures of aggression, or on the basis of cross situational consistency. Again, undertaking these analyses failed to produce any alteration in the results. Although a range in scores of overall aggression was present, this did not create distinct groups. It is also noted that consistency across situations was relatively high for all subjects. It is possible that the majority of these adolescents responded to the situations in a manner that they felt would be approved by their peers. This could explain the consistency of responses, wherein most subjects responded in a similar manner across numerous questions. It is also possible that the situations may have been insufficiently ambiguous with regard to the provocateur's intent to elicit the attributional bias that would be reflected in the responses of the more violent/aggressive youth. Furthermore, it could be the case that the situations themselves, although varied on factors previously related to violence, failed to reflect the situations in which subjects had actually found themselves to be violent. It is noted in this regard that the subjects did not find the situations to be unrelated to their past experience. However, weighting the situations by the frequency with which the subject indicated he had encountered a similar

situation did not alter the results. But it may still be the case that the situations did not reflect violent incidents for which convictions had been obtained. Finally, had the situations been presented under conditions of threat or other emotional arousal (see Dodge & Somberg, 1987), or had they required the youth to invoke more coping strategies (see Wright & Mischel, 1987), more variability amongst the youth may have been obtained.

It is noted that in many previous studies, even when clusters were identified, the clusters failed to be differentiated on external variables. Certainly, it is possible that the particular variables chosen were not those that would differentiate amongst the groups, however, it is also possible that the clusters themselves were artifacts of the data, or of the particular clustering algorithms utilized. It is noted that Megargee and Bohn (1979) did find numerous statistical differences on a variety of variables between their 10 types. However, it also noted that the sample sizes used were of such magnitude that many of the differences detected would be of little clinical utility.

The results of this study do not suggest that clinically useful information is not contained in the results from either the MMPI or the situation data. Individuals whose scores are located at different points in the multivariate space may have distinctly different

personality styles and behavioural tendencies. This information could be very useful with regard to the prediction of future behaviour of the individual. It is also noted that different variables account for the between groups variance in the iterative relocation analyses when the MMPI and situation scores are entered independently or in combination. This result suggests that clinicians may arrive at differing conclusions regarding an individual if either personality characteristics or situational variables are ignored. Rather than suggesting the measures included in this study are not useful with regard to the assessment of violence-potential, the results of this study simply suggest that there are no clear cutpoints between groups of individuals who are similar to each other and different from other groups.

Given the results of the present and previous studies utilizing the MMPI and cluster analytic techniques, it is suggested that cluster analysis of MMPI profiles be abandoned for the present time. Given the inherent instability of cluster analytic techniques and the slow development of methods which find overlapping clusters, further methodological research may be required before this method can be reliably applied to personality data. Although statistical methods of clustering failed to identify disjoint groups of young offenders in this study, this result does not imply that clinically useful groupings

do not exist. As with personality disorders, large overlap may occur across groups and inclusion criteria for different groups may have components in common (see Blashfield, 1990). However, this overlap does not imply that information regarding likely characteristics of an individual and implications for treatment is not conveyed when we refer to an individual as belonging to a particular group. Certainly clinicians convey a great deal of information when they refer to an individual as displaying a narcissistic or a borderline personality disorder, even though clear demarcation between these disorders does not exist. However, in applying a personality disorder diagnosis individual issues and needs are obscured. More detailed assessment of the individual is required to guide specific treatment interventions. Similarly, with regard to the results of the current study, it may be suggested that rehabilitative efforts be directed at the needs of the specific individual as determined in an individual assessment.

Future research needs to address what types of needs are commonly found within this population. Certainly some guidance with regard to characteristics influencing potential for violence is provided in the literature reviewed above. For example, lack of empathy, impulsivity, and drug and alcohol abuse have all been associated with violent behaviour. Speculatively and simplistically, had



disjoint clusters been identified, the groups may have each required intervention in one of those areas. In failing to find distinct groups, the results of this study could be interpreted as suggesting that person A needs to address empathy and impulsivity issues; person B, impulsivity issues and drug and alcohol abuse; and person C, drug and alcohol abuse and empathy issues. In either case, programs addressing each of these problem areas would be required.

Following from this proposal, an alteration in how we research the contribution of the MMPI to the assessment of violence-potential may be required. Rather than using it in attempts to define clusters of individuals, it may be more useful to investigate how clinicians use MMPI data. Clinicians conducting assessments may rely on subscale analysis and incorporate special scale information into their interpretations rather than relying solely on single scale elevations or correlate information on high-point pairs. Future research may investigate both the characteristics that clinicians impute to individuals based upon MMPI data and the method by which they arrive at their interpretations. This procedure may refine and improve the utility of the MMPI in the assessment of violence-potential by addressing more specific factors than can be derived from elevation on nonhomogeneous clinical scales. It could be the case that the heterogeneity of high-point pairs found within clusters in past research overshadows underlying

homogeneity with regard to specific characteristics such as impulsivity, authority problems, superficiality of interpersonal relationships, issues of trust, degree of hostility, externalization of blame, etc. Until such research is conducted, however, this idea remains pure speculation.

Clinical impression suggested that the situation data was providing useful information with regard to the individuals being assessed, however, the design and results of this study cannot attest to the utility of this measure in the assessment of violence-potential. Although the measure showed good inter-rater reliability, construct and predictive validity were not addressed. More detailed analysis of the measure itself, including the degree of 'pull' of individual items for specific types of response, degree of ambiguity of the items with regard to hostile intent, frequency of occurrence of similar situations in documented incidents of violence, consistency of response patterns between research and clinical use of the instrument, and relationship of responses on individual items and/or total scores to the degree and/or types of violence displayed by individuals, would need to be addressed before this measure could be recommended for inclusion in clinical assessments. However, with regard to individual assessments, more accuracy may be obtained by investigating those situational factors that contributed to

past violent acts. Future research could investigate which factors clinicians routinely assess, how they determine the strength of these factors in individual cases, and which factors tend to increase predictive accuracy.

In addition to the investigation of the process by which clinicians assess violence-potential, it is also suggested that future research in this area focus on longitudinal studies. Given that the most successful studies of the prediction of violence suggest that consensual agreement of imminent dangerousness results in the most accurate predictions, studies using more than one professional to predict violence would be indicated (e.g., Werner, Rose, & Yesavage, 1990). If these methods were combined, and judges reported which variables they felt were contributing to their predictions of imminent violence, in individual cases, these variables could then be assessed later for their predictive accuracy (see Webster, 1990 re: the study of actual decision-making). Predictive studies, however, should not be restricted with regard to the variables assessed in individual cases. It is likely the case that different variables would be predictive for different individuals. In this regard, a comprehensive assessment of past situations in which the individual has been violent would also be necessary. Once data had been collected on numerous individuals, and predictive accuracy assessed with regard to these individuals, variables

suspected of contributing to predictive accuracy could be assessed. It would then be possible to look for common factors that contributed across individuals. Some guidance with regard to the initial choice of variables to be assessed, in addition to the MMPI as mentioned above, is suggested in the procedures advocated by Marra, Konzelman, and Giles (1987). These authors include numerous of the variables mentioned above, such as past history of violence, intra-institutional behaviour, past use of weapons, drug and alcohol abuse, and the similarity of the projected environment to past circumstances surrounding incidents of violence. They also incorporate violent fantasies, assessment of mental disorder and its relationship to past acts of violence, psychological data suggesting a tendency toward explosive outbursts or significant denial, and actuarial risk data (often derived from recidivism studies).

Overall, research in the area of violence has provided us with a comprehensive list of personality characteristics and situational factors that should be addressed when assessing violence-potential. The abundance of research in this area continues to add to our knowledge base. Based on clinical experience with offenders considered to be very dangerous, this author believes that we are able to assess violence-potential with much greater accuracy than we have been able to demonstrate in our research endeavours. This conclusion implies that our methods of research

investigation rather than our methods of assessment may need to be changed. However, it remains that further research is required to determine the true extent of and the limitations of our abilities, as well as to explore methods and measures that will improve our accuracy.

## APPENDICES

### Appendix A : Situations

#### Instructions:

I'm going to read you some short descriptions of different situations that people might find themselves in. I'd like you to tell me what you would do and how you would feel if these things happened to you. Additionally, for each situation, I would like you to tell me if you have ever been in a similar situation, and if so, how often. (Scale to be provided).

Unless the story says otherwise, consider everyone else in the stories to be about your age and size.

1. You're at a party and you've had a lot to drink. You've thrown your new jacket across a chair. A guy passes out with a lit cigarette in his hand and burns a big hole in it.
2. There's a new guy on the unit that you haven't met. For some reason he doesn't like you. Right after you finish your chores, he messes up everything you've done.
3. You get home late from a party. You're pretty drunk. Your father has been drinking. He starts calling you names and says that he's going to teach you a lesson.
4. You've done something illegal. You find out that a guy you know has told the police.
5. You overhear two teachers talking about you. Mr. Smith says that your work, when you do it, is the worst that he has seen in years.
6. You're walking home alone. Two guys you know walk up and start talking to you. All of a sudden one guy hits you across the back of the head and knocks you out. When you come to you discover that they've robbed you.

7. You're walking down the street. You see a guy carrying a lot of stuff. He trips and drops it all.
8. Your brother and his friend are listening to music. Your brother tells you to get out of the room because you're making too much noise and disturbing them.
9. You are on your way to your favourite park. You meet a guy you know. He tells you that there is going to be a rumble there involving a gang from the East End who are known to carry chains and knives.
10. You're wrestling with a guy in gym class. He really hurts you.
11. You are standing with three friends outside an empty classroom talking. Suddenly you hear two guys from your class inside. They are talking about you and one of them calls you a wimp.
12. You're playing floor hockey against a team you don't know. An idiot from the other team trips and breaks your stick.
13. You stole some money from your mother. Your brother tells on you.
14. You're at your book locker. Two guys you know walk up. One guy grabs one of your notebooks and starts ripping it.
15. You are on the unit. You and a friend are watching a movie that you've really been looking forward to. The movie will be over in about 45 minutes. It is not on a video tape. A staff member comes up and tells you that you have to do your chores immediately.
16. You've shoplifted something and are just about to go out the door of the store when the store detective grabs you.

17. You're talking with a couple of friends. Another friend joins you. He says that his parents have really been giving him a bad time.
18. You are at a party with your girlfriend. You're both really high. She goes into the kitchen to get a drink and doesn't come back for quite a while. You go into the kitchen looking for her and find a guy that you don't know coming on to her.
19. You're watching TV at home. You get up to get a snack. When you come back you find that your brother has taken your chair and he won't move.
20. You get into an argument on the unit. Two staff members grab you to take you to your room.
21. You've broken into a house, and you're searching for money and booze. The owner walks in and surprises you. He looks to be in fairly good physical condition for a 60 year-old. He blocks the doorway.
22. You are walking home alone down a dark street. Two guys are following you. You don't know them but they are about your age. They catch up with you and ask you for money. One of them has a knife.
23. A couple of guys on the unit are horsing around. As you walk by, one guy pushes the other and the second guy bumps into you.
24. You're talking to a friend in the hallway at school. A teacher comes by and he tells you to quit loitering and get to class.
25. You and some friends have broken into a car. You see a cop car coming and it's slowing down. You don't have time to split without being seen.
26. You want to go to a movie that will end a half-hour later than you usually have to be home. You're parents say 'no', you have to be home at the usual time.



27. You are at a party with a group of friends. There are also people there from a gang in the neighbourhood that you have been fighting with for a couple of months. One of the guys keeps looking at you all evening. You overhear him saying that he just doesn't like the way you look.
28. You and a friend are at your house. Your father is getting a heavy box down from a high shelf. He drops it and it hits you.
29. You're standing in the parking lot after a concert having a beer. You lean against a car. The guy who owns the car walks up behind you. He yells at you to get off his car and just as you turn towards him he throws a punch at you. You duck, but he still gets you in the shoulder.
30. You're sitting in a chair reading. A guy you don't know comes in and sits in the chair next to you. He says Hi, then picks up a magazine and starts reading.
31. You are at a party with all your friends. One of them spills a drink down your T-shirt. Someone tells him to apologize. He refuses.
32. You go to a party with a girl. She disappears. You find her in a bedroom making out with a guy you know.
33. You need some money. You ask a guy from class for a loan. He says no, even though you know that he has enough money.
34. You are walking home with a good friend. You and he are talking about music. A group of classmates are behind you. One of the guys yells out 'Rockers are goofs'.
35. You're at a party and a close friend of yours ODs.

## Appendix B : Situations' Scoring System

SCORE	CRITERIA
13	Physically aggressive with a weapon - includes bats, bottles, etc.
12	Severe physical aggression without a weapon - e.g., beat the shit out of (note affective tone for severity) - threaten with a weapon
11	Physically aggressive without a weapon - e.g., punch, kick, beat up, punch out, scrap - #29 - hit back
10	Threaten with peers - throw objects at the other - #16 & #21 - kick/punch and run
9	Verbal or physical threat of aggression - e.g., "I'm going to _____" - e.g., shake fist, grab, push, struggle against - restrain aggressor/physical defense unspecified - # 9 - ready to help my friends - #10 - hurt him back - #19 - move him - #23 - push him back into the other guy - #31 - pour my drink on him (fun noted = 5)
8	Verbal abuse or escalation without physical contact - e.g., confront him/challenge to a fight - aggression against inanimate objects - attempted escape during commission of a crime - deferred revenge - e.g., get him back later (esp. if unspecified) - # 2 - make him clean it up - # 7 - theft - #12 - break his stick - #23 - push him back
7	Gain assistance from peers (no immediate threat of aggression) - # 4 & #27 - spread the word - #12 - take his stick

- 6 Gain assistance from authority figures
- rule defiance (parents, teachers)
  - derogatory name calling or swearing, and leave the situation
  - deny doing the act
  - # 5 - quit/skip school, quit working
  - #14 - take my book back
  - #15 - argue with the staff
  - #22 - escape from a mugger
  - #32 - call her a name and leave
- 5 Engage in reasoned verbal interchange
- mild command - e.g., watch it
  - mild name calling or reactive swearing (not threatening, and remain in the situation)
  - eg., you idiot
  - engage in horseplay (not escalating - fun)
  - # 1 & #12 - ask him to pay for it
  - #15 - ask/negotiate with/con the staff
- 4 Do nothing or ignore the act (except #20 = 2)
- wait and see what happens
  - don't talk to the person anymore, remember what he/she did
  - mild (reactive) insult and leave the situation
  - # 8 - don't leave (because both 3 and 5 are possible scores)
  - # 9 - go and watch the rumble (stay back)
  - #12 - get another stick (call him a goof)
  - #24 - appear to acquiesce
  - #25 - hide, pretend it's mine
  - walk slowly away
- 3 Remove self from the situation (avoid, not escape)
- # 3 - leave, go to bed
  - # 8 - leave (an apology could be scored 2)
- 2 Apologize, acquiesce, agree
- offer assistance (qualified)
  - # 5 - try harder
  - #17 - offer advice, talk to him
  - #20 - do nothing (implies acquiescence)
  - #30 - say Hi.
- 1 Offer assistance (unqualified)
- # 2 - redo the chore
  - #13 - give the money back
  - #17 - offer a place to stay
- 0 Offer extra assistance (more than normal)
- #35 - give first aid

## NOTES

#10 - if accident noted, score that option  
#32 - score not as girl friend

## GENERAL

Score most aggressive if "or"  
Score first option if extended  
e.g., if he, then I...

Wouldn't happen - score 1 if denying that he would  
commit the antisocial act (e.g., #13)- score 4 if  
responding to a provocateur (e.g., # 3).

Appendix C : Interview re: past criminal acts

Information to be requested regarding the last three incidents which resulted in charges.

1. Victim:
  - age
  - sex
  - relationship to self (status)
  - known/stranger
2. Situation:
  - where
  - others present
  - their activities
3. Precipitating events:
  - type of interchange
  - circumstances leading up to blow  
(if act is violent)
  - victim's behaviour
  - consumption of alcohol or drugs
  - previous interactions with victim
4. Details of incident
  - weapon use, type
  - degree of injury to victim
  - amount and type of violence used (if used)
  - injury to self
5. Attitude and emotion
  - feelings
  - control over behaviour
  - did victim deserve it (intentional/accidental)
  - own motivation
6. Explanation
  - e.g., influence attempt
  - e.g., physical attack
  - e.g., noncompliance/command
  - e.g., identity attack
  - e.g., threat

Based on Felson and Steadman (1983) and Henderson and Hewstone (1984).

Appendix D : Specific offences included in each offence classification

*Property Offences:*

Break & Enter  
Attempted Break & Enter  
Possession of Break & Enter Instruments  
Theft Under \$200  
Theft Over \$200  
Theft Under \$1000  
Theft Over \$1000  
Other Theft  
Theft/Possession Credit Card  
Possession of Stolen Property  
Attempt Commit  
Forgery  
Fraud  
Fraud Food & Lodging  
False Pretences  
Conspiracy  
Trespass  
Unlawfully in Dwelling

*Person Offences:*

Assault  
Aggravated Assault  
Assault W/Weapon  
Assault W/Weapon Causing Bodily  
Assault Peace Officer  
Cause Bodily Harm W/Intent to Wound  
Manslaughter  
Murder  
Attempted Murder  
Arson  
Kidnap  
Robbery  
Attempted Robbery  
Use of a Prohibited Weapon  
Use of a Prohibited Firearm  
Use of a Prohibited Explosive  
Point Firearm  
Harassment  
Intimidation  
Extortion

*Order Offences:*

Mischief

Public Mischief  
Causing a Disturbance  
False Fire Alarm  
Breach of Probation  
Breach of Recognizance  
Breach Young Offenders Act  
Breach of Fishery Act  
Escape  
Fail to Appear in Court  
Contempt of Court  
Resist Police Officer  
Other Administrative

*Sexual Offences:*

Sexual Assault  
Indecent Assault  
Commit an Indecent Act  
Gross Indecency  
Sexual Intercourse W/Female Under 14 Years  
Buggery/Bestiality  
Live off the avails of Prostitution

*Automobile Offences:*

Take Motor Vehicle Without Owners Consent  
Fail to Stop at Scene of Accident  
Negligence  
Impaired Driving  
Driving Above .08 Blood/Alcohol Level  
Impaired Driving Causing Death  
Dangerous Operation of a Motor Vehicle  
Dangerous Operation of a Motor Vehicle Causing Bodily Harm  
Breach of the Motor Vehicle Act  
Driving While Licence Suspended  
Driving While Disqualified

*Drug Offences:*

Possession of Cannabis  
Possession W/Intent to Traffic Cannabis  
Trafficking Cannabis  
Possession of Cocaine  
Possession W/Intent to Traffic Cocaine  
Possession of an Unknown Substance  
Possession - Other  
Possession W/Intent to Traffic - Other  
Restricted Possession of LSD  
Breach of the Government Liquor Control Act

## REFERENCES

- Anderson, W.P., & Holcomb, W.R. (1983). Accused murderers: Five MMPI personality types. Journal of Clinical Psychology, 39, 761-768.
- Archer, R.P. (1987). Using the MMPI with Adolescents. Hillside, N.J.: Laurence Erlbaum Associates.
- Armstrong, P.S. (1983). Overcontrolled and undercontrolled criminal types in situations of varying degrees of provocation to violence. Dissertation Abstracts International, 43 (10-B), 3349-3350.
- Azcarate, E., & Gutierrez, M. (1969). Differentiation of institutional adjustment of juvenile delinquents with the Hand Test. Journal of Clinical Psychology, 25, 200-203.
- Bem, D.J., & Funder, D.C. (1978). Predicting more of the people more of the time: Assessing the personality of situations. Psychological Review, 85, 485-501.
- Berkowitz, L. (1977). Situational and personal conditions governing reactions to aggressive cues. In D. Magnusson and N.S. Endler (Eds.), Personality at the crossroads: Current issues in interactional psychology (pp. 165-171). Hillsdale, N.J.: Lawrence Erlbaum Associates.
- Blackburn, R. (1983). Psychometrics and personality theory in relation to dangerousness. In J.W. Hinton (Ed.), Dangerousness: Problems of assessment and prediction (pp. 57-70). London: George Allen & Unwin.
- Blashfield, R.K. (1990). An American view of the ICD-10 personality disorders. Acta Psychiatrica Scandinavica, 82, 250-256.
- Blashfield, R.K., & Morey, L.C. (1980). A comparison of four clustering methods using MMPI monte carlo data. Applied Psychological Measurement, 4, 57-64.



- BMDP Statistical Software Manual, Volumes 1 & 2. Dixon, W.J. (chief editor), Brown, M.B., Engelman, L., & Jenrich, R.I. (assistant editors) (1990). Berkley, CA: University of California Press.
- Bricklin, B., Piotrowski, Z.A., & Wagner, E.E. (1962). The Hand Test. Springfield, Il.: Charles C Thomas.
- Brodsky, S.L., & Brodsky, A.M. (1967). Hand Test indicators of antisocial behavior. Journal of Projective Techniques and Personality Assessment, 31 (5), 36-39.
- Brown, R. (1986). Social psychology (2nd ed.). New York: The Free Press.
- Cairns, R.B., Cairns, B.D., Neckerman, H.J., Ferguson, L.L., & Gariepy, J-L. (1989). Growth and aggression: I. Childhood to early adolescence. Developmental Psychology, 25(2), March, 320-330.
- Campbell, A., Bibel, D., & Muncer, S. (1985). Predicting our own aggression: Person, subculture or situation? British Journal of Social Psychology, 24, 169-180.
- Carlson, R.W., & Drehmer, D.E. (1984). Rorschach space response and aggression. Perceptual and Motor Skills, 58, 987-988.
- Cohen, M.L., Groth, A.N., & Siegel, R. (1978). The clinical prediction of dangerousness. Crime and Delinquency, 24, 28-39.
- Dahlstrom, W.G., Welsh, G.S., & Dahlstrom, L.E. (1972). T-score conversion tables for the basic scales. An MMPI Handbook: Volume 1, Clinical Interpretation, (Revised ed.). University of Minnesota Press, Minneapolis, 388-390.
- Daum, J.M. (1983). Emotional indicators in drawings of aggressive or withdrawn male delinquents. Journal of Personality Assessment, 47, 243-249.

- Davis, M.H. (1980). A multidimensional approach to differences in empathy. JSAS Catalog of Selected Documents in Psychology, 10, 85.
- Davis, M.H. (1983). Measuring individual differences in empathy: Evidence for a multidimensional approach. Journal of Personality and Social Psychology, 44, 113-126.
- Deluty, R.H. (1983). Children's evaluations of aggressive, assertive, and submissive responses. Journal of Clinical & Child Psychology, 12, 124-129.
- Dodge, K.A., & Newman, J.P. (1981). Biased decision-making processes in aggressive boys. Journal of Abnormal Psychology, 90, 375-379.
- Dodge, K.A. & Somberg, D.R. (1987). Hostile attributional biases among aggressive boys are exacerbated under conditions of threat to the self. Child Development, 58, 213-224.
- Doren, D.M., Megargee, E.I., & Schreiber, H.A. (1980). The MMPI criminal classification system's applicability to a juvenile population. The Differential View, 10, 42-47.
- Duckitt, J.H. (1988). The prediction of violence. South African Journal of Psychology, 18(1), 10-16.
- Edinger, J.D., Reuterfors, D., & Logue, P.E. (1982). Cross-validation of the Megargee MMPI typology: A study of specialized inmate populations. Criminal Justice and Behavior, 9, 184-203.
- Felson, R.B., Ribner, S.A., & Siegel, M.S. (1984). Age and the effect of third parties during criminal violence. Sociology and Social Research, 68, 452-462.
- Felson, R.B., & Steadman, H.J. (1983). Situational factors in disputes leading to criminal violence. Criminology, 21, 59-74.

- Feshbach, N.D., & Feshbach, S. (1969). The relationship between empathy and aggression in two age groups. Developmental Psychology, 1, 102-107.
- Gallucci, N.T. (1987). The influence of elevated F scales on the validity of adolescent MMPI profiles. Journal of Personality Assessment, 51, 133-139.
- Garrison, W.T. (1984). Predicting violent behavior in psychiatrically hospitalized boys. Journal of Youth and Adolescence, 13, 225-238.
- Hair, J.F., Anderson, R.E., & Tatham, R.L. (1984). Multivariate Data Analysis with readings, (2nd ed.). New York: Macmillan Publishing Company.
- Hall, H.V. (1984). Predicting dangerousness for the courts. American Journal of Forensic Psychiatry, 5, 77-96.
- Hall, H., Catlin, E., Boissevain, A., & Westgate, J. (1984). Dangerous myths about predicting dangerousness. American Journal of Forensic Psychology, 2, 173-193.
- Hall, G.C., Graham, J.R., & Shepherd, J.B. (1991). Three methods of developing MMPI taxonomies of sexual offenders. Journal of Personality Assessment, 56(1), Feb., 2-13.
- Hammer, E.F. (1981). Projective drawings. In A.I. Rabin (Ed.), Assessment with projective techniques: A concise introduction (pp. 151-185). New York: Springer.
- Heilbrun, A.B. (1990). The measurement of criminal dangerousness as a personality construct: Further validation of a research index. Journal of Personality Assessment, 54(1-2), Spring, 141-148.
- Heller, M.S., & Ehrlich, S.M. (1984). Actuarial variables in 9600 violent and non-violent offenders referred to a court psychiatric clinic. American Journal of Social Psychiatry, 4, 30-36.

- Henderson, M. (1983). An empirical classification of non-violent offenders using the MMPI. Personality and Individual Differences, 4, 671-677.
- Henderson, M., & Hewstone, M. (1984). Prison inmates' explanations for interpersonal violence: Accounts and attributions. Journal of Consulting and Clinical Psychology, 52, 789-794.
- Hill, R.W., Langevin, R., Paitich, D., Handy, L., Russon, A., & Wilkinson, L. (1982). Is arson an aggressive act or a property offence? A controlled study of psychiatric referrals. Canadian Journal of Psychiatry, 27, 648-654.
- Holcomb, W.R., Adams, N.A., Ponder, H.M., & Anderson, W.P. (1984). Cognitive and behavioral predictors of MMPI scores in pretrial psychological evaluations of murderers. Journal of Clinical Psychology, 40, 592-597.
- Holland, T.R., Levi, M., & Beckett, G.E. (1983). Ethnicity, criminality, and the Buss-Durkee Hostility Inventory. Journal of Personality Assessment, 47, 375-379.
- Holland, T.R., & McGarvey, B. (1984). Crime specialization, seriousness progression, and Markov chains. Journal of Consulting and Clinical Psychology, 52, 837-840.
- Hollin, C.R., & Wheeler, H.M. (1982). The violent young offender: A small study of a Borstal population. Journal of Adolescence, 5, 247-257.
- Jones, T., Beidleman, W.B., & Fowler, R.D. (1981). Differentiating violent and nonviolent prison inmates by use of selected MMPI scales. Journal of Clinical Psychology, 37, 673-678.
- Kalichman, S.C., Szymanowski, D., McKee, G., Taylor, J., & Craig, M.E. (1989). Cluster analytically derived MMPI profile subgroups of incarcerated adult rapists. Journal of Clinical Psychology, 45, 149-155.

- Kaplan, M.F. (1967). The effect of cue relevance, ambiguity, and self-reported hostility on TAT responses. Journal of Projective Techniques and Personality Assessment, 31 (6), 45-50.
- Kellert, S.R., & Felthous, A.R. (1985). Childhood cruelty toward animals among criminals and noncriminals. Human Relations, 38, 1113-1129.
- Kelso, J., & Stewart, M.A. (1986). Factors which predict the persistence of aggressive conduct disorder. Journal of Child Psychology and Psychiatry, 27, 77-86.
- Keltikangas-Jarvinen, L. (1982). Alexithymia in violent offenders. Journal of Personality Assessment, 46, 462-467.
- Kozol, H., Boucher, R., & Garofalo, R. (1972). The diagnosis and treatment of dangerousness. Crime and Delinquency, 18, 371-392.
- Krebs, D., & Miller, D. (1985). Altruism and aggression. In G. Lindzey and E. Aronson (Eds.), The handbook of social psychology (Vol. II, 3rd ed., Chapter 14). New York: Random House.
- Langevin, R., Paitich, D., Orchard, B., Handy, L., & Russon, A. (1982). The role of alcohol, drugs, suicide attempts and situational strains in homicide committed by offenders seen for psychiatric assessment. Acta Psychiatrica Scandinavica, 66, 229-242.
- Lathrop, R.G. & Williams, J.E. (1989). The shape of the Inverse Scree test for cluster analysis. Educational & Psychological Measurement, 49(4), Winter, 827-834.
- Litwack, T.R. (1985). The prediction of violence. Clinical Psychologist, 38, 87-91.
- Lochman, J.E., & Lampron, L.B. (1986). Situational social problem-solving skills and self-esteem of aggressive and nonaggressive boys. Journal of Abnormal Child Psychology, 14, 605-617.

- Loeber, R. (1982). The stability of antisocial and delinquent child behavior: A review. Child Development, 53, 1431-1446.
- Magnusson, D. & Endler, N.S. (1977). Interactional psychology: Present status and future prospects. In D. Magnusson and N.S. Endler (Eds.), Personality at the crossroads: Current issues in interactional psychology (pp. 3-31). Hillsdale, N.J.: Lawrence Erlbaum Associates.
- Marra, H.A., Konzelman, G.E., & Giles, P.G. (1987). A clinical strategy to the assessment of dangerousness. International Journal of Offender Therapy & Comparative Criminology, 31(3), 291-299.
- Martin, J.D., Pfaadt, N.K., & Makinster, J.G. (1983). Relationship of hostility and white space responses on the Rorschach. Perceptual and Motor Skills, 57, 739-742.
- May, J.M. (1986). Cognitive processes and violent behavior in young people. Journal of Adolescence, 9, 17-27.
- McGiboney, G.W., & Carter, C. (1982). Test-retest reliability of the Hand Test with acting-out adolescent subjects. Perceptual and Motor Skills, 55, 723-726.
- McGiboney, G.W., Carter, C., & Jones, W. (1984). Hand Test and the High School Personality Questionnaire: Structural analysis. Perceptual and Motor Skills, 58, 287-290.
- Megargee, E.I. (1967). Hostility on the TAT as a function of defensive inhibition and stimulus situation. Journal of Projective Techniques and Personality Assessment, 31 (4), 73-79.
- Megargee, E.I. (1970). The prediction of violence with psychological tests. In C.D. Spielberger (Ed.), Current topics in clinical and community psychology (Vol. 2). New York & London: Academic Press, pp. 98-156.

- Megargee, E.I. (1984). Aggression and violence. In H.E. Adams & P.B. Sutker (Eds.), Comprehensive handbook of psychopathology. New York and London: Plenum Press, pp. 523-548.
- Megargee, E.I., & Bohn, M.J. (1979). Classifying criminal offenders: A new system based on the MMPI. Beverley Hills & London: Sage.
- Megargee, E.I., Cook, P.E., & Mendelsohn, G.A. (1967). Development and validation of an MMPI scale of assaultiveness in overcontrolled individuals. Journal of Abnormal Psychology, 72, 519-528.
- Megargee, E.I., & Menzies, E.S. (1971). The assessment and dynamics of aggression. In P. McReynolds (Ed.), Advances in psychological assessment (Vol. 2). Palo Alto, Calif.: Science and Behavior Books.
- Menzies, R.J., Webster, C.D., & Sepejak, D.S. (1985). The dimensions of dangerousness: Evaluating the accuracy of psychometric predictions of violence among forensic patients. Law and Human Behavior, 9, 49-70.
- Milich, R., & Dodge, K.A. (1984). Social information processing in child psychiatric populations. Journal of Abnormal Child Psychology, 12, 471-490.
- Miller, P.A. & Eisenberg, N. (1988). The relation of empathy to aggressive and externalizing/antisocial behavior. Psychological Bulletin, 103(3), 324-344.
- Milligan, G.W. & Cooper, M.C. (1987). Methodology review: Clustering methods. Applied Psychological Measurement, 11(4), December, 329-354.
- Monahan, J. (1981). Predicting violent behavior: An assessment of clinical techniques. Beverley Hills & London: Sage.
- Monahan, J. (1984). The prediction of violent behavior: Toward a second generation of theory and policy. American Journal of Psychiatry, 141, 10-15.

- Monahan, J. & Klassen, D. (1982). Situational approaches to understanding and predicting individual violent behavior. In M.E. Wolfgang & N.A. Weiner(Eds.), Criminal violence (pp. 292-319). Beverley Hills: Sage.
- Moskowitz, D.S., Schwartzman, A.E., & Ledingham, J.E. (1985). Stability and change in aggression and withdrawal in middle childhood and early adolescence. Journal of Abnormal Psychology, 94(1), 30-41.
- Mrad, D.F., Kabacoff, R., & Duckro, P. (1983). Validation of the Megargee typology in a halfway house setting. Criminal Justice and Behavior, 10, 252-262.
- Mulvey, E.P., & Lidz, C.W. (1984). Clinical considerations in the prediction of dangerousness in mental patients. Clinical Psychology Review, 4, 379-401.
- Murstein, B.I. (1965). Projection of hostility on the TAT as a function of stimulus, background, and personality variables. Journal of Consulting Psychology, 29, 43-48.
- Murstein, B.I., David, C., Fisher, D., and Furth, H.G. (1961). The scaling of the TAT for hostility by a variety of scaling methods. Journal of Consulting Psychology, 25, 497-504.
- Oas, P. (1984). Validity of the Draw-a-Person and Bender Gestalt tests as measures of impulsivity with adolescents. Journal of Consulting and Clinical Psychology, 52, 1011-1019.
- Ohbuchi, K. (1988). Arousal of empathy and aggression. Psychologia, 31, 177-186.
- Olweus, D. (1977). Aggression and peer acceptance in adolescent boys: Two short-term longitudinal studies of ratings. Child Development, 48, 1301-1313.



- Oswald, M.O., & Loftus, A.P.T. (1967). A normative and comparative study of the Hand Test with normal and delinquent children. Journal of Projective Techniques and Personality Assessment, 31 (4), 62-68.
- Panek, P.E., & Rush, M.C. (1985). Response pattern analysis of the Hand Test: Age differences. Journal of Personality Assessment, 49, 37-42.
- Panek, P.E., & Stoner, S. (1979). Test-retest reliability of the Hand Test with normal subjects. Journal of Personality Assessment, 43, 135-137.
- Posey, C.D., & Hess, A.K. (1984). The fakability of subtle and obvious measures of aggression by male prisoners. Journal of Personality Assessment, 48, 137-144.
- Pulkkinen, L., & Hurme, H. (1984). Aggression as a predictor of weak self-control. Jyvaskyla Studies in Education, Psychology, & Social Research, 54, 172-189.
- Reid, S.T. (1976). Crime and criminology. Hinsdale, IL.: Dryden Press.
- Rutter, M. (1985). Aggression and the family. Acta Paedopsychiatrica, March, (Suppl. 6), 11-25.
- Saltstone, R., & Fraboni, M. (1990). An empirical demonstration of cluster dissimilarity from different clustering methods in a single sample. Journal of Clinical Psychology, 46, 930-934.
- Skinner, H.A. (1978). Differentiating the contribution of elevation, scatter and shape in profile similarity. Educational and Psychological Measurement, 38, 297-308.
- Smith, W.R., Monastersky, C., & Deisher, R.M. (1987). MMPI-based personality types among juvenile sexual offenders. Journal of Clinical Psychology, 43(4), July, 422-430.

Smylie, A.M. (1986a). Neuropsychological discrimination between violent and nonviolent young offenders: A step toward the prediction of violence. Unpublished Master's Thesis, Simon Fraser University.

Smylie, A.M. (1986b). The use of the MMPI in the identification of violent offenders. Unpublished manuscript.

Spellacy, F. (1977). Neuropsychological differences between violent and nonviolent adolescents. Journal of Consulting and Clinical Psychology, 33, 966-969.

SPSS/PC+ Advanced Statistics 2.0 (1988). M.J. Norusis/SPSS Inc. Chicago, IL.: SPSS Inc.

Statistics Canada (1987a). Canadian crime statistics 1986 (Catalogue 85-205). Ottawa, Ont.: Minister of Supply and Services Canada.

Statistics Canada (1987b). Homicide in Canada 1986: A statistical perspective (Catalogue 85-209). Ottawa, Ont.: Minister of Supply and Services Canada

Statistics Canada (1991). Canadian crime statistics 1990 (Catalogue 85-205). Ottawa, Ont.: Minister of Supply and Services Canada.

Stattin, H. & Magnusson, D. (1989). The role of early aggressive behavior in the frequency, seriousness, and types of later crime. Journal of Consulting & Clinical Psychology, 57(6), December, 710-718.

Steadman, H.J. (1982). A situational approach to violence. International Journal of Law and Psychiatry, 5, 171-186.

Stein, M.I. (1978). Thematic Apperception Test and related methods. In B.B. Wolman (Ed.), Clinical diagnosis of mental disorders: A handbook (pp. 179-235). New York and London: Plenum.

- Stoner, S. (1985). Test-retest reliability of the Hand Test with institutionalized mentally retarded adults. Psychological Reports, 56, 272-274.
- Stoner, S., Panek, P., & Satterfield, G.T. (1982). Age and sex differences on the Hand Test. Journal of Personality Assessment, 46, 260-264.
- Stoner, S.B., & Spencer, W.B. (1984). Age and sex differences on the Hand Test with children. Journal of Clinical Psychology, 40, 598-602.
- Taylor, P.J. (1985). Motives for offending among violent and psychotic men. British Journal of Psychiatry, 147, 491-498.
- Tegtmeyer, P.F., & Gordon, M. (1983). Interpretation of white space responses in children's Rorschach protocols. Perceptual and Motor Skills, 57, 611-616.
- Valliant, P.M., Asu, M.E., Cooper, D., & Mammola, D. (1984). Profile of dangerous and non-dangerous offenders referred for pre-trial psychiatric assessment. Psychological Reports, 54, 411-418.
- Veneziano, C., & Veneziano, L. (1986). Classification of adolescent offenders with the MMPI: An extension and cross-validation of the Megargee typology. International Journal of Offender Therapy and Comparative Criminology, 30, 11-23.
- Vetter, H.J., & Silverman, I.J. (1978). The nature of crime. Philadelphia: W.B. Saunders.
- Wagner, E.E. (1983). The Hand Test: Manual, (Revised). Western Psychological Services, Los Angeles, CA.
- Wagner, E.E., Alexander, R.A., Roos, G., & Prospero, M.K. (1985). Maximizing split-half reliability estimates for projective techniques. Journal of Personality Assessment, 49, 579-581.

- Wagner, E.E., & Hawkins, R. (1964). Differentiation of assaultive delinquents with the Hand Test. Journal of Projective Techniques and Personality Assessment, 28, 363-365.
- Wagner, E.E., Maloney, P., & Wilson, D.G. (1981). Split-half and test-retest Hand Test reliabilities for pathological samples. Journal of Clinical Psychology, 37, 589-592.
- Webster, C.D. (1990). Prediction of dangerousness polemic. Canadian Journal of Criminology, 32, 191-196.
- Webster, C.D., Menzies, R.J., & Jackson, M.A. (1982). Clinical assessment before trial: Legal issues and mental disorder. Toronto: Butterworths.
- Werner, P.D., Rose, T.L., & Yesavage, J.A. (1983). Reliability, accuracy, and decision-making strategy in clinical predictions of imminent dangerousness. Journal of Consulting and Clinical Psychology, 51, 815-825.
- Werner, P.D., Rose, T.L., & Yesavage, J.A. (1990). Aspects of consensus in clinical predictions of imminent violence. Journal of Clinical Psychology, 46(4), July, 534-538.
- Wetsel, H., Shapiro, R.J., & Wagner, E.E. (1967). Prediction of recidivism among juvenile delinquents with the Hand Test. Journal of Projective Techniques and Personality Assessment, 31 (4), 69-72.
- Wiggins, J.A. (1983). Family violence as a case of interpersonal aggression: A situational analysis. Social Forces, 62, 102-123.
- Wilkinson, L. (1990). SYGRAPH: The System for Graphics. Evanston, IL.: Systat Inc.
- Wishart, D. (January, 1978). Clustan User Manual (3rd ed.). Inter-University/Research Councils Series, Report No. 47, Program Library Unit, Edinburgh University.

Wolman, B.B. (1980). Violence: Causes, symptoms, remedies. International Journal of Group Tensions, 10 (1-4), 2-37.

Wright, J.C. & Mischel, W. (1987). A conditional approach to dispositional constructs: the local predictability of social behavior. Journal of Personality and Social Psychology, 53, 1159-1177.

Zager, L.D. (1988). The MMPI-based criminal classification system: A review, current status, and future directions. Criminal Justice and Behavior, 15, 39-57.