

**AN EVALUATION OF THE MMPI-2 USING SOUTH AFRICAN  
PRE-TRIAL FORENSIC PATIENTS: PREDICTION OF  
CRIMINAL RESPONSIBILITY AND ASSESSMENT OF  
PERSONALITY CHARACTERISTICS.**

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## **ABSTRACT**

This study examines the utility of the MMPI-2 in predicting responsibility in pre-trial forensic patients, using a *post hoc* sample of 94 offenders from Sterkfontein Psychiatric Hospital in Gauteng. Firstly, the overall characteristics of the pre-trial forensic patients are discussed, following an analysis of demographic, clinical, criminal and MMPI-2 pre-trial data, as well as an overview of the Megargee typological classification of offenders. The sample is classified into Criminally Responsible (CR), Diminished Criminal Responsibility (DCR) and Not Criminally Responsible (NCR), and the CR and DCR groups are collapsed (CR/DCR) for many of the analyses when comparing them to the NCR group. Secondly, the variance of variables with responsibility is discussed, after examining one-way ANOVA's of demographic, clinical, criminal and MMPI-2 variables, as well as an overview of high point pairs. Thirdly, discriminant analyses were conducted of demographic, clinical and MMPI-2 variables. When comparing the collapsed CR/DCR group to the NCR group, psychiatric diagnosis, presence of psychosis, the MMPI-2 Pa and Es scales, as well as race and substance abuse each had unique predictive power and created a substantial discriminative equation ( $F(6,70) = 45.732, p < 0.0005$ ) with a successful prediction rate of 96%. Using only MMPI-2 variables to predict responsibility showed significant unique contributions for the Pa, Es, MAC-R and Mf scales, with the BIZ scale not quite significant, and a fairly significant overall discriminant equation ( $F(5,73) = 6.474, p < 0.0005$ ), with an overall successful prediction rate of 82%, with the MMPI-2 variables adding an additional 3% to the predictive power of the demographic and clinical variables. Similarly, when examining the more complex 3 group responsibility classification of CR, DCR and NCR, it was found that the demographic, clinical and MMPI-2 variables of psychiatric diagnosis, psychosis, race, substance abuse, and the Pa, Es and Ma scales all had significant contributions to a powerful discriminant analysis ( $F(14, 136) = 19.758, p < 0.0005$ ) that was capable of correctly reclassifying almost 95% of the sample, and the MMPI-2 variables providing an increase in predictive power of 8%. Differences in responsible and not responsible pre-trial forensic patients are discussed, as well as the role of the MMPI-2 in assessing these differences, and the fact that it is highly likely that it adds more to the forensic assessment of responsibility than a 3% (CR/DCR versus NCR) or 8% (CR versus DCR versus NCR) increase in predictive power. Limitations of the study are discussed, together with recommendations for future research with the MMPI-2 for assessment of criminal responsibility. The suggestion is made that the MMPI-2 can become a valuable tool in South African forensic settings, not only in the assessment of responsibility and malingering, but also in the placement, management, follow-up and treatment of offenders, to maximize the limited resources in South Africa allocated for the rehabilitation of offenders, and minimize the risk of recidivism or rehospitalization.

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## **INTRODUCTION**

This investigation of the usefulness of the MMPI-2 in providing an understanding of the personality dynamics of pre-trial forensic patients and in evaluating its ability to add to the predictive power of demographic and clinical variables, was undertaken after working in a psychiatric hospital in the Eastern Cape. The MMPI-2 was utilized occasionally in both psychiatric and forensic settings, and it appears to have utility both diagnostically, as well as in the dynamic conceptualisation and treatment of patients. It became apparent how understaffed government hospitals are, and that the MMPI-2, as a self-report measure, was all the more valuable. The pervasive effects of crime in this country, high levels of recidivism and rehospitalization, as well as the public's general mistrust of the insanity plea, led to a focus for this dissertation on determination of responsibility within pre-trial forensic settings. Review of international literature showed clearly how useful the MMPI-2 has been overseas in many different forensic settings, and a guiding influence in the research for this study is to begin the process of converting this wealth of knowledge into practical assessment applications for South Africa.

Chapter 1 begins by considering three bodies of international literature on the MMPI-2 that are connected to forensic issues. Firstly, it synthesises information on the prediction of behaviours with the MMPI-2, focusing on violence and antisociality. Secondly, it briefly discussed research on its ability to identify disingenuous presentations. The third section contains the two main thrusts of this dissertation. The first outlines the literature on using the MMPI-2, together with demographic, clinical and criminal variables, to understand the personality characteristics of pre-trial forensic patients. The second examines the ability of the MMPI-2, together with demographic clinical and criminal variables, to predict responsibility with pre-trial forensic patients, and discusses the relative importance of the MMPI-2 in forensic assessment. The international forensic literature on the MMPI-2 is followed by a brief analysis of the debate concerning the accuracy of generalising the vast body of research (including forensic) accumulated on the MMPI, to the MMPI-2. This is necessary as some areas of forensic research are still governed by literature on the MMPI, with the only studies actually examining the discrimination of responsible from not responsible pre-trial forensic patients having been conducted with the MMPI. The following section summarises the South African legal status of the 'insanity plea', and necessarily contrasts it with the USA as much of the literature in this

dissertation is from abroad. Finally, the South African studies with the MMPI and MMPI-2, as well as the somewhat sparse literature linking this with forensic matters is contrasted with the need for thorough forensic assessment in this country.

Chapter 2 outlines the method of research. The instrument section examines the reliability and validity of the MMPI and MMPI-2, including an overview of the determination of T-scores and the various types of scales, and the fluctuation and applicability of general norms for the MMPI-2 to specific subgroups. The population and sampling section examines the population used in the study, ethical considerations, the collection and classification of data, grounds for exclusion of invalid profiles, and a rationale for the variables used in the final discriminant analysis.

Chapter 3 outlines the results from this study. Firstly, it shows the attributes of the pretrial-forensic sample as a whole, including demographic, clinical and criminal variables, as well as MMPI-2 validity, clinical, content and supplementary scales, clinical high point pairs, and classification into Megargee typologies. Secondly, it shows results from an analysis of variance of variables with responsibility, including demographic, clinical and MMPI-2 variables selected *a priori*, and selected other demographic, clinical, criminal and MMPI-2 variables, as well as a description of high point pairs for the various responsibility groups. Lastly, it describes results from various discriminant analyses examining the predictive power of demographic, clinical and/or MMPI-2 variables in determining responsibility of pre-trial forensic patients.

Chapter 4 synthesizes and discusses the main results of this study, and examines their implications. It also examines limitations of the study, and makes recommendations for future international and SA research, as well as the application of the MMPI-2 in South African forensic settings.

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\* There are a few large appendices included, notably *appendix 8* which provides a summary of the 10 Megargee typologies. These were included as they provide valuable practical information on the benefits of the MMPI-2 to mental health professionals in S.A., with *appendix 8* in particular providing a context for personality interpretation of all the pre-trial patients in this sample, as well as of the criminal population in general.

# **CHAPTER ONE: LITERATURE REVIEW**

## **1.1 MMPI-2 FORENSIC RESEARCH AREAS**

Over the years, several lines of research have developed that are directly relevant to forensic applications of the MMPI. The first of these includes studies that have used the MMPI to predict behaviors or class memberships that would be relevant to the criminal justice system (Ben-Porath & Graham, 1995). Secondly, there has been a body of literature that has looked at the ability of the MMPI to predict and quantify if an individual is being disingenuous in their self-presentation (Ben-Porath & Graham, 1995). Finally, research has evaluated the ability of the MMPI to characterize the personalities of various classes of criminals (Ben-Porath & Graham, 1995), otherwise referred to as the dynamics of criminal behavior. This includes the identification of the association between MMPI scale scores and personality, including measuring various symptoms of psychopathology (Ben-Porath & Graham, 1995), and potential personality clusters that are strongly associated with criminal behavior (Megargee, Carbonell, Bohn, & Sliger, 2001).

This dissertation takes bearing on all three bodies of research. Firstly, pre-trial forensic patients tend to be perpetrators of violence or other antisocial activities. Secondly, they have a particularly strong motivation to malingering. Thirdly, the ability of the MMPI-2 to identify psychopathology is central to assessing responsibility in pre-trial forensic patients. The ability of the MMPI-2 to identify distinguishable personality clusters within the pre-trial forensic population also helps provide guidelines for understanding this population, thereby also identifying treatment and placement needs (an indirect goal of forensic assessment).

### **1.1.1 GENERAL PREDICTORS OF VIOLENCE**

#### **1.1.1.1 HISTORICAL**

Research has shown that personal historical factors account for the majority of statistical variance contributing to violence (DeSouza, & Doyal, 1998). DeSouza & Doyal (1998) outlined long – term precipitating factors to include being male, usually under 25 years of age, low socioeconomic class, unmarried, with sub-cultural attitudes that condone violence as a problem solving method. Short-term precipitating factors include substance abuse and loss of an important love relationship. Factors that act as a deterrent to violence include being female, older, high socioeconomic class and high educational level (DeSouza, & Doyal, 1998). However, the gap is closing between male and female violent behaviors. Hare (1978, in De Souza & Doyal,

1998) found that male criminal psychopaths had the highest scores on early behavior problems such as fire setting, school difficulties, enuresis and fighting.

### **1.1.1.2 SOCIAL LEARNING FACTORS**

Social learning theory professes that violence and aggression are learned within the family (De Souza & Doyal, 1998), and that there would therefore be a link between assaultive behavior of the accused and assaultive behavior in the family environment, or the peer group (De Souza & Doyal, 1998).

### **1.1.1.3 PERSONALITY PREDICTORS OF VIOLENCE**

Social deviance in general can be seen to be the result of factors that include impulsivity, egocentricity, alienation from others, immature judgment, poorly developed inner resources for tolerating frustration and delaying need gratification, and deficiencies of foresight, self-understanding, and ability to learn from aversive experiences (Holland & Levi, 1988, pp. 398). Some specific personality factors contributing to violence are described below:

Verbal intelligence is seen as allowing for better adaptive response options in a variety of situations, including an increased range of options for dealing with the initial emotional insult and resultant negative arousal and has consistently discriminated between offender and non-offender populations (Nussbaum, Choudry & Martin-Doto, 1996). Psychopaths with lower intellect are also more likely to commit violent and impulsive crimes than brighter psychopaths, or than non-psychopathic offenders regardless of intellect.

Cognitively impulsive individuals favor a basic immediate, visceral response to provocation without consideration of available alternatives, even when intellectually available (Nussbaum, Choudhry & Martin-Doto, 1996), and some research has shown that there is a correlation between violent behavior and impulsivity (Nussbaum et al., 1996), with Kozeki & Berghammer (1991 in Nussbaum et al., 1996) finding a strong negative correlation between impulsivity and moral motivation, and a strong positive correlation between empathy and moral motivation, and concluding that impulsivity precludes consideration of the needs and feelings of others thereby increasing the likelihood of aggression. Megargee, Cook and Mendelsohn (1967) have developed and validated an over-controlled hostility (O-H) scale for the MMPI and MMPI-2. This follows the typology suggesting that over controlled persons, who have inhibitions against aggressive behavior, respond only infrequently with violence, but when they do so the violence is of a high intensity (Megargee, Cook & Mendelsohn, 1967; Schmalz, Fehr & Dalby, 1989). Greene (2000)

established that high Pd – Hy\* pairs tend to denote the attempt to over-control hostile impulses. In comparison, the under controlled person has little inhibition against acting out, and responds quite frequently with physical and verbal aggression, but in a far less extreme manner (Megargee, 1966). Holland, Beckett, and Levi (1981, in Schmalz et al., 1989) found that high scores on the F – Pd – Ma index might be correlated with repetitive under controlled mild to moderate aggressive behavior. Investigations have tended to confirm the utility of the O-H scale within forensic populations in the prediction of extreme violence (Schmalz et al., 1989).

Locus of control refers to an individual's belief about whether his behavior is internally or externally controlled, with research on young offenders showing a tendency to be externally controlled (Nussbaum et al., 1996). Although verbal intelligence, cognitive impulsivity, and locus of control may in some instances discriminate between offenders and non-offenders, they do not appear to discriminate between violent and non-violent mentally disordered offenders (Nussbaum et al., 1996).

Studies have shown that rapists have lower levels of empathy than non-rapists and thus, whereas non-rapists arousal to sexual themes is inhibited by contexts where the woman is hurt or humiliated, this is not the case for rapists (Rice, Chaplin, Harris, Coutts, 1994). This lack of empathy for victims is a defining feature of Antisocial Personality Disorder (American Psychiatric Association, 1994) and psychopathy, with the degree of psychopathy found to be correlated with the degree of recidivism in a sample of rapists (Rice et al., 1994). However, this does not account for all rapists and Rice et al. (1994) hypothesize that with some particularly serious sexual offenders, factors such as victim distress and violence contribute to sexual arousal, which places this behavior more firmly in the zone of violence and control.

Psychopathic deviate, depression, and hypomania scales have all been found to be elevated in forensic samples with both the MMPI (Graham, 2000), and the MMPI-2 (Megargee, Mercer, Carbonell, 1999). Osberg & Poland (2001) found that the best combinations of the D, Ma and Pd scales, although significant, could only predict about 20% of the variance in past criminal offences, leading them to believe that these scales need to be combined with demographic and other correlates of recidivism in order to yield the best results.

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\*Due to space constraints the name of each MMPI-2 scale has not been included with the abbreviation throughout the text. Equally, as explained in the literature review, the names of many of the scales are somewhat misleading. Instead, an overview with the name and brief description of each scale has been included in *Appendix 14*.

Some researchers have shown that even when personality factors are significant they often only account for a small percentage of the variance between violent offenders and others (Perkins & Reeves, 1975; Nussbaum et al., 1996) and caution other researchers to also emphasize the magnitude of the relationships when accepting or rejecting their hypotheses. Personality factors might well fail to discriminate well between crime type due to the complexity of the criminal personality (Perkins & Reeves, 1975), and a better understanding of the complexities of criminal typologies would be of aid to research in this field.

### **1.1.2 DISCRIMINATION BETWEEN VIOLENT AND NON-VIOLENT OFFENDERS**

#### **1.1.2.1 OFFENDERS**

DeSouza and Doyal (1998) ran a hierarchical regression analysis that could explain 39% of the variance for male assault individuals through family criminality (+), and the MMPI-2 scales Ma (-), Pa (+) and D (-). Although prior history of convictions was not quite significant at  $p < .05$ , it did explain an additional 5% of the variance. This factor is significant in much of the literature, and the fact that it isn't significant here may be due to a different coding method. DeSouza and Doyal (1998) point out that previous non-homicide and homicide convictions were coded as a single continuous variable causing an overlap between under controlled and over controlled violence. DeSouza and Doyal (1998) contend correctly that the under controlled offender would be positively related to a history of violence whereas the over controlled offender would be negatively related to a history of violence, and the two need to be disseminated and coded separately. It is conceivable that the variance explained by the MMPI Pa scale is due to people turning to criminal activities as a reaction to pathological parenting, which would be consistent with other literature on antisocial aggressive delinquents which found that 30 – 40% of general antisocial practices are accountable to disruptive parenting (DeSouza and Doyal, 1998).

#### **1.1.2.2 PRE-TRIAL FORENSIC PATIENTS**

Research (Quinsey, Arnold, Pruesse, 1980; Shea & McKee, 1996) has attempted to predict offence type in pre-trial forensic patients (see *Appendix 1* and *Table 2*). Men who had murdered or attempted to murder people that they knew had the least number of previous admissions to correctional facilities and were older, were more likely to be married, and were diagnosed less frequently as being personality disordered (Quinsey et al., 1980). Quinsey et al., (1980) divided subjects into groups depending on whether the offence type was: (1) murder or attempted murder of a victim well known to the accused, (2) murder or attempted murder of an unknown victim, (3) rape, (4) arson, (5) child molestation, and (6) property offences. Analysis of variance showed

that neither the Pd scale nor O-H scale were significant predictors of offence category. A stepwise discriminant analysis used 11 variables from the MMPI and demographic data to correctly classify 43% of offenders, where 17% would have been correctly classified by chance. Equally, research by Shea & McKee (1996) found no significant difference in variance on any MMPI-2 scales (Shea & McKee, 1996). There were also no significant differences for the frequency of T scores over 65 and under 40. The MMPI-2 profile of murderers (Shea & McKee, 1996) was compared to the murderer profile Holcomb, Adams, Ponder & Anderson, (1984) derived for the MMPI, which was adjusted down 5 T score points. The profiles are extremely similar in shape, both with highest mean elevations on 6 and 8, with 4 and 7 also elevated. Scale L and 2 were slightly more elevated in the MMPI-2 sample, with scale 8 less elevated.

A final discriminant analysis by Quinsey et al. (1980) yielded 15 variables that could correctly classify 59% of offenders into three groups of murderers, sex offenders, and arson and property offenders (Quinsey et al., 1980). The most significant contributors, in order of declining importance, were age, diagnosis of personality disorder, and vocabulary intelligence quotient. Standardized discriminant coefficients showed that the murder group had higher Si, Hy and L scale scores, as well as vocabulary IQ, than offenders in the other 2 groups, and were older, had lower R and Sc scores scale scores, and were less likely to be personality disordered. The frequency of high-point pairs for each group was not significant, with a mean profile of 4-8-2 (Quinsey et al., 1980). In fact the profiles of the different groups were extremely similar, with the majority of profiles showing strong similarity to those of the Megargee types (Megargee et al, 2001) of Charlie (8-6-4) and How (8-2-4). Quinsey and colleagues (1980) agree with Megargee's (1967) assessment of these groups as being the most disturbed and aggressive of criminal offenders, as this fit their sample.

Shea & McKee (1996) calculated the frequency of T scores over 65 or under 40 for a murder and non-murder index offense pre-trial forensic sample, and found that the MMPI-2 also did not appear to discriminate between them. It is likely, however, that quite a high percentage of the non-murder group had committed violent crime at some stage, which might help to explain why none of the scales that normally indicate violence had a significant variance between the groups. The mean MMPI-2 profile of those charged with murder had high points of 6 and 8, with additional elevations also on 4 and 7, which reflects high levels of withdrawal, suspiciousness, irritability, resentment and confusion, perhaps emphasizing both their antisocial backgrounds and current situations (Shea, McKee, Craig & Culley, 1996).

### **1.1.3 RESEARCH ON VIOLENT FEMALES**

It needs to be noted that there are extensive differences between violent male and violent female offenders (DeSouza, & Doyal, 1998), irrespective of whether they suffer from psychiatric disorders. Past research shows that assaultive males had a significantly higher number of prior convictions accounting for approximately 87% of homicides in the U.S.A. (DeSouza, & Doyal, 1998; McKee, Shea, Mogy & Holden, 2001), and a significantly lower history of sexual or physical abuse. Women appear to kill in ways that reflect gender role behavior or self-protection from violent men (McKee et al., 2001), with modeled criminality from parents contributing significantly to the hierarchical regression model of assault males but not females (De Souza & Doyal, 1998). McKee et al. (2001) analyzed a sample of filicidal, maritidal and homicidal women, which supported previous research on men that MMPI-2 profiles do not differentiate effectively among crime types.

Highly aggressive females also have a high F scale and Pd scale, signifying unusual views of themselves, and tend towards antisocial behavior (DeSouza, & Doyal, 1998). In contrast to the males, female assault criminals had 25% of the variance explained by prior convictions (-), and the MMPI-2 Hy scale (+). This supports the literature that shows that assaultive females are unlikely to have a prior history of criminality. This would lead one to consider the possibility that they might have a high correlation with the O-H scale. The fact that female assault criminals had suffered much more physical and sexual abuse than their male counterparts, and yet this factor was still not a significant contributor to variance, may have to do with the recording of data. DeSouza, & Doyal (1998) point out that this information is often not reported, and thus the incidence of abuse may be far higher than what was reported and thus able to be coded. DeSouza, & Doyal (1998) controlled for females raised by their natural parents, and discovered that female assault offenders who had an absent or dead parent were significantly correlated with being physically and/or sexually abused, having a criminal parent or sibling, and being depressed. It must be noted that homicide patterns of men and women have become more similar due to the expansion of roles and opportunities for women in society.

## **1.2 EVALUATING INVALID MMPI-2 PROFILES AND MALINGERING**

### **1.2.1 REASONS FOR INVALID PROFILES**

#### **1.2.1.1 MALINGERING**

The Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association, 1994) asserts that patients who intentionally fabricate or grossly exaggerate symptoms to obtain external incentives are classified as malingering. It is strongly suspected where 2 or more of the following factors are present: medico-legal context of presentation, marked discrepancy between subjective complaints and objective evaluation and evidence, a lack of cooperation in evaluation or treatment, or the presence of antisocial personality disorder (American Psychiatric Association, 1994).

Individuals are sometimes motivated to fake mental illness in situations such as determination of competency to stand trial, a plea of not responsible, an attempt to influence sentencing (placement and/or duration), to obtain medicinal or housing preferences, and attempts to avoid duties and responsibilities after placement at a correctional institution (Iverson, Franzen, & Hammond, 1995). Non-criminal adjudications such as personal injury litigation, workers compensation claims and social security disability adjudications can also lead to motivation for malingering (Iverson et al., 1995), as can secondary gain in some psychiatric patients where there are no monetary benefits (e.g. not having to work or getting sympathy from family members).

#### **1.2.1.2 OTHER REASONS FOR INVALID PROFILES**

Other individuals may not be trying to malingering, but may be unable to complete the MMPI-2 successfully due to factors such as incomprehension (brought on by low intelligence, illiteracy, psychosis etc.), amotivation, and fatigue (some dementia patients can comprehend the questions, but find that the inventory is too long and so their answers become random over time). Whatever the reason for the profile being distorted, what is ultimately fundamental is that it is possible to determine if an inventory (or assessment) is accurate enough that it can still be construed to be an adequate reflection of the mental state of the respondent.

### **1.2.2 ASSESSMENT OF MALINGERING: WEIGHING UP SELF- REPORT MEASURES**

The most extensively validated current objective approach to identification of malingering is the Structured Interview of Reported Symptoms (SIRS), which has the limitation that it takes

approximately one hour of a one-on-one structured interview to administer (Lewis, Simcox, & Berry, 2002). Given the time and personnel constraints in most psychiatric and forensic settings, the SIRS tends to be used only once self-report measures have completed an initial screening for malingering. The largest body of research on detection of malingering using self – report measures has focused on the MMPI and MMPI-2 (Butcher, Dahlstrom, Graham, Tellegen, & Kaemmer, 1989), and has shown that these inventories are relatively sensitive to faking bad. MMPI/MMPI-2 profiles of malingerers tend to have elevated validity scales such as F, Fb, F(p), subtle minus obvious, and F – K, and often have a grossly elevated clinical scale profile with “saw tooth” configuration showing relative peaks on 8, 6, 4, 2 (Hawk & Cornell, 1989). However, optimal scales and optimal cutting scores have not been established for the detection of malingering (Lewis et al., 2002). Equally, this profile strongly resembles that of the standard forensic profile, which makes differentiation more problematic.

Levels of malingering in pre-trial forensic samples appear to vary from around 20 – 45 % (Lewis et al., 2002; Wasyliv, Grossman, Haywood & Cavanaugh, 1988).

### **1.2.3 MMPI-2 AS DETERMINANT OF INVALID PROFILES**

The MMPI-2 has a large number of validity inventories that are designed to determine not only if the profile is largely valid, but also (if not valid), in what way it has been made invalid. So for example it determines if the whole profile was answered randomly, if the respondent attempted to convey themselves in a more positive light, or if the respondent answered fairly honestly for the first 300 or so questions, after which point the answers became more or less random. These scales thus not only determine if the other scales can in fact be consulted (if the profile is valid), but lead to hypotheses about the invalid profile.

It is equally important not only that invalid profiles are excluded from evaluation, but also that valid profiles are not incorrectly excluded from further evaluation. In fact, it is often more important that clients are not judged to be malingering when in fact they are not (if there is no second screening process using the SIRS or a similar instrument). These tensions between these two possible error types determine the cut-off points for the validity indices.

#### **1.2.3.1 MMPI-2 AND MOST USEFUL DISCRIMINATING VALIDITY SCALES**

Some studies (Bagby, Rogers, Buis, Nicholson, Cameron, Rector, Schuller, & Semen, 1997) have found that the Backpage Infrequency (Fb) scale is the most useful in discriminating between valid profiles and those of malingered depression, but that the Infrequency (F) and Infrequency

Psychopathology (F(p) scale are better for detecting feigned schizophrenia. Other research (Berry, Cimino, Chong, La Velle, Ho, Morse, & Elkins, 2001) found that the dissimulation (Ds) Scale is optimal for detecting malingering in outpatients asked to feign malingering.

A new malingering evaluation measure, the Structured Inventory of Malingered Symptomatology (SIMS) is a brief self report measure that has shown positive results in analogue studies but has not yet been systematically validated (Lewis et al., 2002).

### **1.2.3.2 CUT-OFFS FOR VARIOUS POPULATION GROUPS**

Studies have used a large variation in cut-off points in discriminating invalid profiles (including those of malingerers) from valid profiles, with the most useful cut-off values seeming to vary quite widely depending on the exact nature of the sample (Iverson et al., 1995; Lewis et al., 2002; Moskowitz, Lewis, Ito, & Ehrmentraut, 1999; Osberg & Poland, 2001; Rogers, Bagby, & Chakraborty, 1993; Roman & Gerbing, 1989; Rothke, Friedman, Dahlstrom, & Greene, 1994; Wright, Nussbaum, Lynett, Buis, 1997).

### **1.2.3.3 NEED FOR LESS STRINGENT CUT-OFF SCORES FOR FORENSIC**

#### **SAMPLES**

Studies have used analogue designs\* to compare MMPI-2 scores of psychiatric patients with standard administration instructions with scores of psychiatric patients who were instructed to mangle their answers (Rogers et al., 1993). Similarly, they have compared scores of inmates with standard instructions both to inmates instructed to mangle and to psychiatric inpatients (Iverson et al., 1995). Non analogue designs\*\* have compared psychiatric patients with those likely to be malingering (Walters, Scrapansky, & Marlow, 1986), female forensic patients (Holden, Thompson, Mogy and Postma, in Wright et al., 1997), forensic samples (Wright et al., 1997), psychiatric and forensic patients (Moskowitz et al., 1999), and have tended to show that current cut-off values appear to exclude a high proportion of non-malingerers. Wright et al. (1997) found support for this in that both their assumed malingering and non-malinger groups produced essentially the same configurations on the clinical scales, with no significant differences.

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\* Analogue designs are 'artificial' designs in the sense that they are constructed under laboratory conditions and thus not necessarily analogous with the *de facto* situation. In this context they refer to studies where selected individuals were instructed to mangle

\*\* Non-analogue studies in this context refer to studies attempting to classify and then utilize MMPI-2 scores of 'real' malingerers.

Thus, although normative data in forensic contexts is still relatively sparse (Wright, et al., 1997) it is felt that traditional cut-offs are perhaps not appropriate for this group. With forensic pre-trial patients, it is worthy to consider that possible reasons for profound elevated profiles and validity scales might include acute psychosis, substance withdrawal, stress of recent arrest (Roman & Gerbing, 1989), or stress from being evaluated, rather than malingering. Forensic patients have been identified as having elevated F, F-K, and subtle-obvious differences as a group (Grillo, Brown, Hilsabeck, Price, 1994; Roman & Gerbing, 1989) even once potential malingerers have been removed from the data set (Lees-Haley, 1992, Wright et al., 1997). Roman & Gerbing (1989) were also able to show that dangerous individuals are capable of producing clinically depressed profiles, although they are normally still elevated on L or K.

Support for higher cut-off scores for forensic patients comes from the fact that forensic patients in general produce disproportionately high rates of severe personality disorders, which appear to correlate with most MMPI-2 validity scales. Wise (2002) discovered with a forensic sample that all validity scales correlated with from 2 to 12 personality disorders, with validity scales F, K, Fb, IR, S Od, F(p), Ds, Ds-r all being frequently affected by personality disorders, and TRIN, FBS and WSD being the least affected.

There has been a trend towards using altered cut-off scores, mostly with positive results. Roman and Gerbing (1989) removed random profiles from their forensic sample, but did not use any of the traditional validity indices to screen out profiles as they argued that elevations on scale F in acute psychiatric populations may be due to genuine psychopathology rather than efforts to deceive. Other research has postulated that clinicians cannot use any fixed cut-off score to establish profile validity (Berry, Baer & Harris, 1991; Rogers, Sewell & Salekin, 1994, both in Shea et al, 1996), and Rothke and colleagues (1994, in Shea et al., 1996) postulate that no single set of cut-offs can be found that will be appropriate for all normative sub-populations, and proposed that for any given group one should use the upper and lower scores beyond 2 standard deviations (approximately 2.5% two – tailed) on the standard normal curve. This would lead to “fake-good and fake-bad cut-offs for the pre-trial forensic population of approximately –22 and +25, although Shea, et al., (1996) feel that this cut-off may be not be stringent enough for a pre-trial population where the motivation for malingering is so high.

Research (Osberg & Poland, 2001) has begun also to use the fairly moderate validity cut-off criteria set out by Butcher, Graham & Ben-Porath (1995, in Osberg & Poland, 2001), after an extensive review of the forensic literature, which excludes profiles if the number of omitted

responses > 30, L (T) > 80, F (raw score) > 30, K (T) > 80, TRIN raw score of 13 or more or 5 or less, or VRIN (T) over 80.

#### **1.2.3.4 PREDICTING MALINGERING WITH PRE-TRIAL FORENSIC PATIENTS**

A complete review of this literature is beyond the scope of this dissertation, and the focus here has remained with Pre-Trial Forensic Patients (PTFP's). Those who are interested should refer to articles by Greene (1994), Iverson et al. (1995), Lewis et al. (2002), Moskowitz, Lewis, Ito, & Ehrmentraut (1999), Osberg & Poland (2001), Rogers, Bagby, & Chakraborty (1993), Roman & Gerbing (1989), Rothke, Friedman, Dahlstrom, and Wright, Nussbaum, Lynett and Buis (1997).

##### **1.2.3.4.1 VALIDITY SCALES PREDICTING MALINGERING IN A PTFP SAMPLE**

Significant results were found for all the validity scales used (F, F(b), F(p), and F-K), (see *Table 1*) with the greatest effect sizes for the MMPI-2 being achieved for scale Fb (3.6) and F (2.9), as compared to the highest effect size for a SIMS scale (Cohen & Cohen, 1983), which was 3.0. A forward stepwise logistic regression with the 4 MMPI-2 validity scales showed that only Fb was significantly related to criterion status.

**Table 1: Malingering\***

| Scale & cutting score | Sensitivity | Specificity | Hit Rate | PPP  | NPP  |
|-----------------------|-------------|-------------|----------|------|------|
| MMPI-2 F-K>10         | .79         | .94         | .89      | .86  | .91  |
| MMPI-2 F>107T         | .67         | 1.00        | .90      | 1.00 | .87  |
| MMPI-2 Fb>108T        | .83         | .94         | .91      | .86  | .92  |
| MMPI-2 F(p) >16       | .50         | 1.00        | .84      | 1.00 | .81  |
| SIMS total score>16   | 1.00        | .61         | .73      | .54  | 1.00 |

PPP = positive predictive power (PPP)

NPP = negative predictive power (NPP)

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\* Accuracy of a diagnostic procedure is generally summarized in sensitivity, specificity, hit rate, positive predictive power (PPP), and negative predictive power (NPP) (Lewis et al., 2002). If the variable that is being used to predict cutting score is continuous then a cutting score is used to separate the sample into test positives (predicts presence of a condition) and negatives (predicts absence of a condition) (Lewis et al., 2002). Sensitivity shows the percentage of those known to have the condition that have a positive test sign (i.e. can identify 79% of malingers), and specificity shows the percentage of those known not to have the condition who have a negative test sign (i.e. can identify 94% of honest). Hit rate is the total number of correct predictions made over the total number of prediction made. Sensitivity and specificity are presumed to be stable at a particular cutting score, while PPP and NPP vary with the base rate of the condition. PPP shows the percentage of individuals who have a positive test sign who actually have the condition (86% who are shown to be malingers are malingers), while NPP shows the percentage of those who have a negative test sign who actually do not have the condition (91% of those shown to not be malingers (honest) are not malingers (are honest)) (Lewis et al., 2002). PPP and NPP are usually more useful in clinical settings where scales are normally used to predict an unknown criterion (Lewis et al., 2002). In this particular study (Lewis et al., 2002) it means that the NPP value of 1.00 for SIMS shows that 100% of those found to be honest (not malingering) were in fact honest, which is useful here as the presumption is that the potential malingers would then be sent for further analysis, probably via the SIRS. If, however, no other assessment tool is going to be used as a second hurdle to identify malingers, then the PPP value needs to be maximized for several reasons. Lewis et al. (2002) noted that the superiority of the Fb scale in this study is surprising and this research needs to be replicated.

#### **1.2.3.4.2 MMPI/MMPI-2 SCALE CORRELATIONS WITH MALINGERING IN A PTFP SAMPLE**

The suspected malingering group of Lewis et al. (2002) achieved significantly higher scores on 9 of the 10 clinical scales (not Mf), with the highest effect sizes being for Pa ( $R=2.3$ ) and Sc ( $R=2.6$ ). This was similar to the findings of Hawk and Cornell (1989), who used DSMIII-R criteria to divide pre-trial forensic patients into those who were psychotic, non-psychotic, and those malingering psychosis. The malingerers scored significantly higher than the psychotics on scales F, F-K, 1, 2, 3, 4, 6, 7, 8 and significantly higher than the non-psychotics on F, F-K, 1, 2, 3, 4, 5, 6, 7, 8, 9. The psychotics scored higher than the non-psychotics only on scale 8 (Hawk & Cornell, 1989). A discriminant function analysis using these significant scales correctly classified 77% of psychotic patients and malingerers overall (Hawk & Cornell, 1989).

Some important differences were found between the profiles of malingerers and psychotics, with the malingerers profiles being grossly elevated with classical “saw tooth” configurations (Hawk & Cornell, 1989). The most extreme differences in elevations occurred on F, 2, 6, and 8. Although both malingering and psychotic groups had 8-6 mean high points and the “paranoid V” of 6-7-8, the mean MMPI profile of the psychotic group was much lower, and in contrast to the malingered group none of the “neurotic” triad scales being elevated for the psychotic group. The non-psychotic group had a mean 8-4 high point.

Wasyliw et al. (1988) compared a pre-trial sample with a group of previously acquitted forensic patients (suspected lower risk of malingering). The pre-trial evaluation group had a significantly higher number of profiles elevated on the F scale, F-K index, Ds scale and O-S scale. The pre-trial and not responsible group did not differ on the number of subtle items endorsed, but the pre-trial group endorsed significantly more obvious items (Wasyliw et al., 1988). There were no significant differences between the groups on scales measuring minimization of pathology, including the K scale, L scale, and the Mp scale (Wasyliw et al., 1988).

#### **1.2.3.4.3 CORRELATIONS BETWEEN MALINGERING AND VARIOUS CLINICAL AND CRIMINAL VARIABLES**

Kucharski, Ryan, Vogt and Goodloe (1998) identified groups of suspected malingerers and suspected honest pre-trial forensic patients based on psychiatric history prior to instant offence, and found the two groups produced no significant differences in age, years of education, or number of prior offences. A significantly lower percentage of the potentially honest group had a

diagnosis of Antisocial Personality Disorder (Kucharski et al., 1998), which was reaffirmed by Lewis et al. (2002) who also found that a significantly higher percentage of their own suspected malingering group received an axis II diagnosis. Significant differences between the two groups of Kucharski et al. (1998) were found for each of the six predictor variables, namely, atypical nature of symptom presentation, degree of unusualness of symptom combination, degree that symptom presentation is inconsistent with GAF, degree of discord in affective presentation, degree of thought disorganization, and degree of uncommonness of hallucinatory experience. Discriminant analysis showed that 90% of the subjects could be correctly classified according to the three variables, in decreasing order of discrimination: clinical presentation inconsistent with GAF, unusual hallucinatory experiences, and unusual symptom presentation\* (Kucharski et al., 1998).

Wasyliw et al. (1988) reported a significant positive correlation between potential length of sentence and exaggeration on both the Ds and O-S scales validity scales (which had a strong positive correlation with malingering), as well as a significant negative correlation between potential length of prison sentence and minimization on the L scale and Mp scale (which had a strong negative correlation with malingering), making it not unlikely that potential length of sentence is correlated with malingering.

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### **1.3 CHARACTERISTICS OF PRE-TRIAL FORENSIC PATIENTS**

Forensic patients referred for a pre-trial mental health assessment prior to court proceedings represent a group that include characteristics of both typical psychiatric patients as well as incarcerated offenders (Schmalz et al., 1989). The most obvious difference between the psychiatric patient and the forensic patient is presumably criminal behavior, while the difference between the forensic patient and an incarcerated offender (what we shall refer to throughout as an inmate) is the degree of psychopathology (Schmalz et al., 1989). These variables are clearly not discrete, and it is often their continuous nature that makes the discrimination of forensic pre-trial offenders so complex and challenging. Research on pre-trial forensic patients has examined a host of different variables, and appears mostly to have been based in USA, often in a single state.

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\*Symptoms reported by malingerers include reports of vague visual hallucinations such as demons or shadows, being awakened from a sound sleep by auditory hallucinations, continuous hallucinations, and command hallucinations telling the defendant to engage in criminal activity, no thought disorder, coexisting anxiety, depression and hallucinations, a host of psychiatric complaints that are not restricted to particular syndromes, and an attempt to call attention to symptoms Kucharski et al (1998). Kucharski et al. (1998) point out that none of these by themselves can be taken as evidence of malingering, and equally that lack of prior history of psychiatric hospitalization can have several explanations other than malingering, such as first episodes and rapid onset of psychosis. Equally, defendants presenting with drug induced psychosis or psychosis secondary to neurological impairment may have unusual psychiatric symptoms Kucharski et al. (1998).

### **1.3.1 DISTINGUISHING PROFILES OF PRE-TRIAL FORENSIC PATIENTS FROM SIMILAR GROUPS**

#### **1.3.1.1 CHARACTERISTICS OF OFFENDERS**

In a Mexican sample, inmates responded in a manner consistent with offenders worldwide, scoring higher on scales that reflect significant social and interpersonal maladjustment such as F, Sc, MAC-R, FRS and TRT (Boscan, Penn, Velasquez, Savino, Maness, Guzman & Reimann, 2002). Further, although not statistically significant, their scores on scales reflecting sociopathy were similarly elevated (for example, Pd, BIZ, CYN and LSE). They were shown to have lower statistically significant scores on scales that reflect more general mental health, interpersonal skills and social conformity, such as Do and GM. Equally, inmates had lower statistically significant scores on scales that reflect conventionality, motivation to participate in healthy behaviors, and good coping skills, such as Re and Es (Boscan et al., 2002). It must be noted that the sample used by Boscan et al. (2002) was extremely small, which would put the research at risk of making Type I errors.

#### **1.3.1.2 COMPARING MMPI-2 CHARACTERISTICS OF FORENSIC INPATIENTS, PSYCHIATRIC INPATIENTS AND INMATES:**

Most studies conducted with forensic patients compile descriptive data about this group, with far fewer studies using assessment instruments to investigate their psychological characteristics (Moskowitz, et al., 1999). In the U.S.A. forensic inpatients tend to be unmarried men in their mid thirties who have a prior history of involvement in the legal system. They were found to have sporadic job histories in work requiring limited skills, with their offences likely to be violent acts against others, such as murder (Moskowitz, et al., 1999).

There has not always been consistency in the research findings comparing forensic inpatients, inmates and psychiatric patients (see *appendix 2*). However, general trends have developed. Psychiatric patients obtained significantly higher T-Scores than inmates on Clinical Scales Hs, D, Hy, Mf, Pa, Pt, Sc, Si (Schmalz et al., 1989) and significantly higher T-Scores than forensic inpatients on Clinical Scales: D, Pt (Moskowitz et al., 1999; Schmalz et al., 1989), Hy, Mf (Schmalz et al., 1989) F, Hs, D, Pt, Sc, Si (Moskowitz et al., 1999), and lower scores on scale K (Moskowitz et al., 1999). Forensic patients obtained significantly higher T-Scores than inmates on clinical Scales: Pa, Sc, and Pt (Schmalz et al., 1989). Moskowitz et al. (1999) discovered that forensic inpatients and psychiatric patients did not differ as expected on supplementary scale Re and content scales CYN and ASP, or on Harris Lingoies subscale Pd2 and had significantly lower

scores on content scale ANG. Schmalz et al. (1989) found that inpatient psychiatric subjects are significantly older than inmate or inpatient forensic populations and received significantly more diagnoses of psychosis, in contrast to research by Roman and Gerbing (1989) which found that forensic inpatients had significantly more diagnoses of paranoid schizophrenia than psychiatric inpatients. Boehnert (1987) found that while his forensic inpatients produced an 8-4 code-type, the psychiatric patient profile was elevated on 8, 4, 2, 6, and 7.

Generally, forensic inpatients appear to be functioning at a higher level than psychiatric inpatients (Moskowitz et al., 1999; Schmalz et al., 1989; Shah, Greenberg & Convit, 1994). They may act out more by behaving antisocially and / or abusing alcohol and drugs, rather than internalising symptomatology (Schmalz et al., 1989). Certainly, forensic inpatients have significantly more diagnoses of alcohol abuse (Roman & Gerbing, 1989; Schmalz et al., 1989) and of antisocial personality disorder (Roman & Gerbing, 1989) than psychiatric patients, and these are likely to play a major role in the crimes they commit. Forensic inpatients appear to differ from prison populations in having a higher degree of irritability, pervasive anger and hypersensitivity, all of which are often connected to paranoia, which might also help to explain the higher degree of crimes against persons committed by the forensic patient (Roman & Gerbing, 1989).

The primary function of discriminant analysis is to find dimensions along which groups are the most different, and then to use these dimensions to predict group membership (Schmalz et al., 1989). Schmalz et al. (1989) conducted a stepwise discriminate function analysis of the inmate, psychiatric patient and forensic inpatient groups, which was significant with  $X^2(30) = 158.56$ . Classification function coefficients were derived for each group and used to 'reclassify' each group, with inmates being correctly reclassified 77% of the time, psychiatric patients 70% and forensic patients 62% (Schmalz et al., 1989). Forensic inpatient scores were found to be more similar to those of psychiatric inpatients than those of inmates (although they did not appear to suffer the severity of psychopathology that psychiatric inpatients obtained). Therefore, another stepwise discriminate function analysis was conducted, with an inmate group against a collapsed forensic and psychiatric group, which yielded a significant discriminant function  $X^2(10) = 107.25$ ,  $p < .01$ . This shows that, in descending order, the scales Sc, F, Hy, O-H, Hs, Mf, and D were MMPI predictor variables of psychopathology.

Moskowitz et al. (1999) had profiles that in general were lower than Schmalz et al. (1989), probably due to the more stringent validity criteria that were applied, as well as the fact that the

MMPI-2 tends to have flatter scales. Equally, they had a longer period of hospitalization, during which medication and psychotherapy may well have reduced psychopathology (Moskowitz et al., 1999).

### **1.3.1.3 DIFFERENCE BETWEEN FORENSIC INPATIENTS AND PRE-TRIAL FORENSIC PATIENTS FOUND NOT RESPONSIBLE.**

Theoretically, we are talking about a similar population group here, and yet we have to be extremely cautious when comparing characteristics: By the very fact that some forensic not responsible patients are released shortly after the trial, the sample of inpatients becomes slightly eschewed, towards those who have committed more severe crimes, and who are more mentally ill. However, even though the demographics might be similar, the role of medication and psychotherapy implies that there is opportunity for some of these inpatients to become better adjusted, thus adjusting their clinical profile. Any pre-trial forensic evaluation and court adjudication places severe situational stress on any individual, which would again imply an altering of the clinical profile of these individuals at this time. It is possible to speculate that overall demographic variables would be least affected by these changes, followed by psychiatric diagnosis at time of adjudication, and then crime type, with current clinical evaluation possibly being the most effected.

### **1.3.2 PROFILES OF PRE-TRIAL FORENSIC PATIENTS**

Irrespective of whether the MMPI or MMPI-2 was utilized, the profile appears robust against group differences such as gender, F-K and diagnosis, with L, K, Hy, and Si never elevated, Mf, Hs and Ma seldom elevated, and F, D, Pa, Pt, Sc and Pd always or almost always elevated (Wright et al., 1997) (see *table 2*, and *table 3*). Shea et al., (1996) used the MMPI-2 and showed T-score elevations over 65 on clinical scales F, 8, 6, 7, 4, 2, 1, in descending order of size, and on content scales DEP, BIZ, HEA and TRT. Because mean profiles can sometimes obscure individual profile characteristics (Butcher & Tellegen, 1978), frequencies of clinically significant scores (above 65 or under 40) were examined. Scales where 40% or more of the profiles were under 40, in descending order, were 7, 8 and 1 (Shea et al., 1996). Scales where 50% or more of the scores were over 65, in descending order, were CYN, 6, DEP, F, ANX, 2, TRT, BIZ (Shea et al., 1996). In general, this means that pre-trial defendants scored higher on scales reflecting psychological distress, confusion, suspiciousness, and authority problems. The benefits of showing frequencies of clinically significant scores was clearly revealed, with D not having a mean profile elevation, but with over half the subjects having mean elevations here, suggesting depression to be a problem for a large percentage of pre-trial defendants (Shea et al., 1996). This

profile is likely to reflect the unique situation of these subjects who on the one hand have recently lost their freedom, are in distress, and do indeed have an authority organizing against them, and on the other are behaviorally disinhibited and may suffer from a psychological disorder and/or be malingering (Shea et al., 1996; Wright et al., 1997). They have committed one or more crimes against people or property, and are referred for psychiatric evaluation prior to court proceedings.

**Table 2: Pre-Trial Forensic Patients**

|     | Shea & McKee (1996) ## |           |            |           | Holcomb et al. (1984) # | Wright et al. (1997) ## |      |    |           | Shea et al. (1996) ## |           |           |            |
|-----|------------------------|-----------|------------|-----------|-------------------------|-------------------------|------|----|-----------|-----------------------|-----------|-----------|------------|
|     | Murder                 |           | Non murder |           | Murder                  | Female                  | Male | PD | Psychotic | Pre-trial forensic    |           |           |            |
|     | X                      | % T >65 * | X          | % T >65 * | X                       | X                       | X    | X  | X         | X                     | % T <40 * | % T >65 * | %T < or >* |
| L   | 56                     | 15        | 60         | 23        | 48                      | 62                      | 58   | 50 | 55        | 56                    | 9         | 18        | 27         |
| F   | 75                     | 56        | 88         | 62        | 79                      | 87                      | 73   | 82 | 73        | 79                    | 8         | 59        | 67         |
| K   | 45                     | 7         | 45         | 4         | 44                      | 49                      | 49   | 48 | 54        | 45                    | 34        | 6         | 40         |
| Hs  | 66                     | 22        |            | 32        | 61                      | 63                      | 59   | 63 | 60        | 66                    | 42        | 26        | 68         |
| D   | 68                     | 54        |            | 56        | 59                      | 66                      | 61   | 67 | 59        | 67                    | 3         | 55        | 58         |
| Hy  | 57                     | 42        |            | 49        | 56                      | 61                      | 58   | 64 | 55        | 61                    | 12        | 44        | 56         |
| Pd  | 68                     | 34        |            | 37        | 72                      | 70                      | 65   | 73 | 65        | 68                    | 18        | 36        | 54         |
| Mf  | 48                     | 5         |            | 5         | 54                      | 57                      | 50   | 51 | 53        | 48                    | 21        | 5         | 26         |
| Pa  | 75                     | 58        |            | 68        | 77                      | 72                      | 70   | 70 | 73        | 75                    | 4         | 62        | 66         |
| Pt  | 68                     | 22        |            | 29        | 69                      | 69                      | 63   | 65 | 65        | 70                    | 47        | 24        | 71         |
| Sc  | 75                     | 39        |            | 45        | 77                      | 76                      | 70   | 78 | 74        | 77                    | 41        | 41        | 82         |
| Ma  | 56                     | 16        |            | 22        | 60                      | 62                      | 58   | 59 | 65        | 59                    | 21        | 18        | 39         |
| Si  | 58                     | 36        |            | 40        | 55                      | 53                      | 57   | 53 | 57        | 59                    | 7         | 37        | 44         |
| ANX |                        |           |            |           |                         |                         |      |    |           | 65                    | 7         | 57        | 64         |
| FRS |                        |           |            |           |                         |                         |      |    |           | 60                    | 5         | 32        | 37         |
| OBS |                        |           |            |           |                         |                         |      |    |           | 58                    | 9         | 38        | 47         |
| DEP |                        |           |            |           |                         |                         |      |    |           | 71                    | 2         | 60        | 62         |
| HEA |                        |           |            |           |                         |                         |      |    |           | 66                    | 4         | 50        | 54         |
| BIZ |                        |           |            |           |                         |                         |      |    |           | 70                    | 6         | 51        | 57         |
| ANG |                        |           |            |           |                         |                         |      |    |           | 56                    | 8         | 30        | 38         |
| CYN |                        |           |            |           |                         |                         |      |    |           | 59                    | 3         | 77        | 80         |
| ASP |                        |           |            |           |                         |                         |      |    |           | 55                    | 4         | 35        | 39         |
| TPA |                        |           |            |           |                         |                         |      |    |           | 50                    | 14        | 17        | 31         |
| LSE |                        |           |            |           |                         |                         |      |    |           | 62                    | 6         | 42        | 48         |
| SOD |                        |           |            |           |                         |                         |      |    |           | 55                    | 8         | 32        | 40         |
| FAM |                        |           |            |           |                         |                         |      |    |           | 60                    | 9         | 41        | 50         |
| WRK |                        |           |            |           |                         |                         |      |    |           | 63                    | 7         | 48        | 55         |
| TRT |                        |           |            |           |                         |                         |      |    |           | 65                    | 7         | 52        | 59         |

# MMPI (corrected -5)

## MMPI-2

X = Mean T Scores

\* Frequency of scores either greater than 65 or less than 40

Research looking at overall demographic and clinical correlates for pre-trial forensic patients pleading not responsible (Callahan, Steadman, McGreevy, Robbins, 1991; Holcomb et. al, 1984; Pasewark, Jeffrey, Bieber 1987; Schmalz et al., 1989; Shea & McKee, 1996; Shea et al., 1996; Wright et al., 1997) have shown that they are relatively stable in terms of both demographic and

clinical variables. Figures (see *appendix 3*) in male or mixed samples for presence of psychosis or schizophrenia in pre-trial patients appear quite stable, ranging from around 24 – 43% (Callahan et al., 1991; Janofsky, Vandewalle, Rapoport, 1989; Pasewark et al., 1987; Steadman, Keitner, Braff, Arvanites, 1983), Mental Retardation or organic defect 5 – 7% (Callahan et al., 1991; Pasewark et al., 1987), Personality Disorders 15 – 29% (Callahan et al., 1991; Pasewark et al., 1987; Wright et al., 1997) with substance abuse or dependence being primary in around 7 – 27% (Callahan et al., 1991; Pasewark et al., 1987).

Pre-trial forensic samples had less agreement in terms of the breakdown of offences (see *appendix 4*), with murder being the index offence in between 14 and 64% of the studies (Callahan et al., 1991; Pasewark et al., 1987; Rogers & McKee, 1995), although some studies do not clarify whether attempted murder is classified under murder or assault, which may partially account for these differences. This is comparable to forensic inpatient studies. The majority of crimes in the sample involve crimes of violence against individuals, rather than against property (Callahan et al., 1991; Janofsky et al., 1989; Pasewark et al., 1987; Rogers & McKee, 1995).

#### **1.3.2.1 PROFILES OF FEMALE PRE-TRIAL FORENSIC PATIENTS**

The pretrial sample tends to be overrepresented by females (although females are still a small minority of pre-trial patients), as compared to appearing in court on criminal charges (Pasewark et al., 1979), with a higher percentage of women also having murder as their index offense. Wright et al. (1997) found that 40% were suffering from psychotic disorders, 24% from personality disorders and 4% from affective disorders. There was no significant difference between this and the male pre-trial sample. The woman in this group did not display more overall psychopathology as expected, except for the low F-K group, and did not differ on any individual validity or clinical scale scores. However, females diagnosed with personality disorders did display higher scale 7 scores than men, possibly because different levels of anxiety and distress lead to varying behavioral presentations (Wright et al., 1997). Wright et al. (1997) hypothesize that females display more psychopathology and less antisocial traits than men due to male persons with personality disorders having lower levels of anxiety, allowing them to express their antisocial traits in a more explicit form.

### **1.3.3 OUTCOME AFTER ADJUDICATION: PLACEMENT AND REHABILITATION**

#### **1.3.3.1 HOSPITALIZATION**

Those patients found not to be criminally responsible for their crimes (which we will now term forensic inpatients) tend to be boarded in psychiatric hospitals, with a relatively small percentage being released directly after trial. There are different levels of security that they are boarded under, depending on factors such as mental stability and seriousness of the crime they committed, as well as psychiatric evaluation of current level of dangerousness. A study compared these forensic inpatients to psychiatric inpatients (see *appendix 5*) that were matched for primary diagnosis, substance abuse and various demographic variables, and found that the forensic inpatients were generally significantly higher functioning, with significantly better personal care skills and social acceptability skills (including aggressiveness and dangerousness), with only indices their interpersonal relations being equitable to those of psychiatric patients (Shah et al., 1994). Despite this seemingly higher level of functionality and lower dangerousness, forensic inpatients were still incarcerated for significantly longer periods of time in hospital (Shah et al., 1994), which appears in contravention of the above assessment (see *appendix 5*). It is possible that the reluctance to release forensic inpatients is based on other additional considerations such as perceived risk to specific individuals outside the hospital, or perhaps specific members of the legal or health care system, or the increased seriousness of a mistake for a patient who has previously been arrested for a serious crime, perhaps due to political and media exploitation. Certainly, it has been shown that insanity acquittees who committed murder have tended to experience longer hospitalizations, irrespective of mental state (Pasewark et al., 1982; Steadman, 1980).

Studies comparing the length of hospitalization for forensic patients found not to be responsible, and incarceration for criminals matched for sentence and demographic variables (see *appendix 5*) have shown mixed results (Pasewark et al., 1982). This is partly due to the fact that some research has compared the sentences served by forensic inpatients to the initial; sentence that the pre-trial criminal faces, when in fact these sentences are almost always shorter in USA due to plea bargaining (Steadman, 1983).

#### **1.3.3.2 RECIDIVISM**

Recidivism rates for forensic inpatients tend to vary from around 31% to 64% depending on factors such as the type of hospital they are in, the type of crime committed, and the mental

illness that the patient is suffering from (Tellefsen, Cohen, Silver, Dougherty, 1992). Factors making recidivism more likely (see *appendix 6*) appear to include being male, being in a regionalized hospital in USA, not being schizophrenic, and not having committed a violent crime (Tellefsen et al., 1992). A factor that appears to minimize the risk of recidivism is an outpatient therapy program that monitors progress and rehospitalizes patients who appear to be showing evidence of relapse (Tellefsen et al., 1992).

Some research as shown that ex mental patients with prior legal contact are now more likely to be arrested than members of the general public (Roman & Gerbing, 1989), particularly when violent crimes or crimes against the public are considered (Walters et al., 1986). Roman & Gerbing (1989) hypothesise that this may be both due to changes in research methods as well as the result of deinstitutionalisation policies that have resulted in the release of potentially dangerous patients into the community. However, the overwhelming majority of not responsible forensic patients appear to know the person that they commit violence against, with a South African study showing that around 69% of murderers were friends, acquaintances or family members of the victim (Crime Information Analysis Centre (SAPS), 2001). This appears to refute the perspective often held by the public that acquittals due to insanity would eventually return people to the streets to kill more innocent strangers (Pasewark, Pantle, Steadman, 1979).

### **1.3.3.3 PREDICTIVE EQUATIONS FOR RECIDIVISM AND REHOSPITALIZATION**

Research has used basic demographic, criminal and clinical variables for discharged and conditionally released forensic patients to predict rehospitalization, recidivism, and functioning during these periods. It falls outside of this paper to give an inclusive account of this literature, but a brief overview has been provided in *appendix 7*.

### **1.3.4 MEGARGEE TYPOLOGIES**

The goal of assessing criminals as responsible and not responsible is not purely academic, or routed solely in retributive justice. Part of the goal incorporates principles of distributive justice, including rehabilitation, which requires correct placement and treatment both of mentally ill and non-mentally ill offenders. Areas of focus include thorough rehabilitation of offenders through correct treatment and placement, and prevention of recidivism or return to psychiatric inpatient treatment, through thorough follow-up programs, where necessary. High recidivism rates and both of inmates and forensic patients, as well as high rehospitalization rates, mean that available resources need to be utilized maximally to aid rehabilitation. One of these resources, which

happens to use the MMPI-2 scales as its classification tool, is the Megargee typologies (Megargee & Bohn, 1979; Megargee, Carbonell, Bohn & Sliger, 2001).

#### **1.3.4.1 DEVELOPMENT OF A CRIMINAL CLASSIFICATORY SYSTEM**

A criminal classification system was deemed necessary as a more cost effective way of meeting the unique treatment, placement and rehabilitation needs of both inmates and forensic psychiatric patients. The MMPI was chosen in USA to develop a criminal classification system as it had already shown considerable reliability, validity and practical usefulness in measuring personality attributes, had demonstrated its applicability to the criminal justice system, and could hopefully improve on previous classificatory systems in that it has a quantifiable database that can be easily administered and scored, and that might be able to reflect true dynamic shifts in personality, attitude and behavior (Zager, 1988).

After an extensive investigation of a Florida federal prison, Megargee and Bohn (1979) proposed a prisoner classification system in 1967, involving 10 MMPI clusters based on a factor analysis of the clinical scales. The data was obtained from the Federal Correctional Institution (FCI) at Tallahassee, Florida, which was a medium security prison for youthful offenders (Megargee & Bohn, 1979; Megargee et al., 2001). It was discovered not only that the criminal population could be classified into 10 distinct clusters based on the MMPI, but that these groupings had distinctive criminal, clinical, demographic and personality characteristics (Megargee & Bohn, 1979; Megargee et al., 2001). Rules were then developed for classifying profiles into the 10 groups, for both men and women, and these have subsequently been altered to be optimum for the MMPI-2 (Megargee et al., 2001).

#### **1.3.4.2 TEN CRIMINAL TYPOLOGIES**

*Appendix 8* is a synthesis of information from Megargee et al. (2001; 183-326) of some of the accumulated information on these typologies from the original FCI study as well as all the other independent studies. This is only a of an extensive wealth of information on personality, clinical, criminal and demographic correlates of criminal personality typologies, as determined by MMPI-2 clinical scale patterns, accordingly it is suggested that the original text is read by those who are interested. Information on the reliability and validity of the Megargee typologies is available in *appendix 9*.

### **1.3.4.3 INSTITUTIONAL ADJUSTMENT OF DIFFERENT TYPOLOGIES**

The Megargee system has been used predominantly for placement and treatment, either through correctional or forensic psychiatric settings. It is felt that the least pathological groups (Item and Easy) should have the best adjustment, and the most pathological groups (Foxtrot, Jupiter, Charlie and How) will have the most problems (Zager, 1988). It has also been shown that different groups have adjusted differently to different institutional prison and psychiatric situations, such as work programs, dormitory assignments, educational programs, institutional misconduct, and potential for violent episodes (Megargee et al., 1969; Megargee et al., 2001). Some studies have found that Megargee typologies were unable to predict inmate adjustment and tendencies towards violence, however many of these were beset by methodological flaws such as incorrectly classifying typological groups and only using volunteer samples (Zager, 1988). Motiuk (1986) used a sample of halfway house inmates to predict treatment success and reincarceration, and had mixed results. However, Zager (1988) points out that in their regression analysis they included the worst adjusted group (How) in their 'non-problematic' group. Carey, Garske & Ginsberg (1986) discovered that the typologies only demonstrated predictive validity for a European-American and not for an African-American sample. However, most studies have produced more favorable results (Booth & Howell, 1980; Booth & Howell, 1983; Carey et al., 1986; Edinger, 1979; Walters et al., 1986).

### **1.3.4.4 MEGARGEES TYPOLOGIES IN FORENSIC PSYCHIATRIC SETTINGS**

Megargee typologies have also been used in forensic psychiatric samples where they have tended to find a higher percentage of the more severely pathological types (Walters, 1986). In fact though, there is a somewhat smaller gap between prisoners and forensic with the prevalence of severe psychopathology in prisons being around 5%-10% (Walters et al., 1986), and with forensic psychiatric hospitals having a percentage of patients that do not in fact suffer from severe psychological illness. Hutton, Miner and Langfeldt (1993) felt that the Megargee typologies are also useful for placement and treatment in a forensic psychiatric setting. Of the nine studies conducted in inpatient forensic settings, the distribution amongst the various typologies was Able 8.9%, Baker 2.6%, Charlie 13.7%, Delta 10.8%, Easy 6.0%, Foxtrot 6.7%, George 7.5%, How 27.3%, Item 15.4%, and Jupiter 1.2% (Megargee et al., 2001).

## **1.4 DISTINGUISHING BETWEEN RESPONSIBLE AND NOT RESPONSIBLE PRE-TRIAL FORENSIC PATIENTS**

### **1.4.1 DEMOGRAPHIC VARIABLES**

Not responsible patients differ significantly from responsible patients (see *appendix 10*) in that they are older (Callahan et al., 1991; Pasewark et al., 1987; Steadman et al., 1983) and better

educated (Callahan et al., 1991; Pasewark et al., 1987; Rogers, Seman & Stampley, 1984). Some studies (Steadman, 1980) have shown they are more likely to be white, but others have found that this trend was not significant (Janofsky et al., 1989; Pasewark et al., 1987; Steadman et al., 1983). Some research has found that being female is also significantly correlated with being found not responsible (Callahan et al., 1991; Pasewark et al., 1987; Steadman et al., 1983), although these findings are not all consistent (Steadman et al., 1983). Being single was also significantly correlated with being not responsible in one study (Callahan et al., 1991), although other research has not duplicated this finding (Pasewark et al., 1987; Janofsky et al., 1989). Factors not found to be significantly correlated included employment status and employment history (Janofsky et al., 1989; Pasewark et al., 1987).

#### **1.4.2 CRIMINAL VARIABLES**

The correlation with crime committed and criminal history in general, is far more complex (see *appendix 4*). Number of prior arrests (Janofsky et al., 1989; Pasewark et al., 1987; Steadman et al., 1983) or age at time of first arrest (Pasewark et al., 1987) has not been found to be significantly correlated with an evaluation of being not responsible. A more violent crime index was correlated with being found not criminally responsible in some research (Callahan et al., 1991), although this was not duplicated in others (Pasewark et al., 1987; Steadman et al., 1983). Findings pertaining to a significant correlation between whether the crime was against people or property, and a finding of not responsible, have been inconsistent (Janofsky et al., 1989; Pasewark et al., 1987). Callahan et al., (1991) conducted a huge study over 49 counties in 8 states in USA that discovered that whether the trial was conducted by a judge or a jury was significantly correlated with adjudication of being criminally not responsible, with a judge statistically more likely to find the defendant not responsible. In fact, only 14.3% of those cases of insanity pleas that were decided by a jury were found to be not responsible, versus 47% found not responsible by a judge, with an 11% acquittal rate through plea-bargaining (Callahan et al., 1991). This may have some bearing on interpreting these statistics in a S.A. context, where we might expect a higher overall acquittal rate than in USA if all other factors were equal.

Research has varied wildly in terms of the correlation between the type of crime committed and being adjudged to be criminally not responsible. This is in part due to the fact that research has actually not been consistent in what has been measured. Some research has investigated the correlation between adjudication and the index crime, some has looked at a longitudinal history of all crimes committed up to and including the index crime, and some has looked at the most violent crime ever committed. Equally, different research has categorized attempted murder with

either the murder category or with assault. On the surface, the results are extremely confusing. From around 0% - 64% of people who were found to be not responsible had committed murder, in comparison to 14%-22% for those found responsible for their actions (Callahan et al., 1991; Janofsky et al., 1989; Pasewark et al., 1982; Pasewark et al., 1987; Shah et al., 1994). Total violent crimes against people have also proven to be inconsistent (Callahan et al., 1991; Pasewark et al., 1982; Pasewark et al., 1987). In general, those found to be not responsible tend to know the victim, there tends to only be one victim, and the crime is quite often of a violent or more serious nature (Callahan et al., 1991; Pasewark et al., 1982).

### **1.4.3 CLINICAL VARIABLES**

(See *appendix 3* for more detail on this section.) A diagnosis of schizophrenia or some form of psychosis has unanimously been found to be significantly correlated with being adjudicated or evaluated by a psychiatric team to be not responsible (Callahan et al., 1991; Janofsky et al., 1989; Pasewark et al., 1987; Steadman et al., 1983), and appears to generally be the most highly correlated factor with both these variables. Equally, a history of psychosis or of other major mental illness (Steadman et al., 1983), or a longer history of psychiatric treatment (Callahan et al., 1991; Pasewark et al., 1987; Steadman et al., 1983) prior to the index offense has also been significantly correlated with being found not responsible (see *appendix 4*). A low incidence of drug or alcohol usage was also found to correlate significantly (Pasewark et al., 1987), or to be large but not quite significant (Janofsky et al., 1989) with an evaluation of not responsible.

Diagnoses of schizophrenia have tended to range from around 57-68% for not responsible (Pasewark et al., 1979; Pasewark et al., 1982) versus 43% for those pleading insanity as a whole (Pasewark et al., 1979). Similarly, a diagnosis of psychosis for those found to be criminally not responsible has varied from 64-82% (Janofsky et al., 1989; Pasewark et al., 1987; Steadman et al., 1983) compared to around 10% - 28% for those found criminally responsible (Janofsky et al., 1989; Pasewark et al., 1987; Steadman et al., 1983). Diagnoses of personality disorder have tended to be significantly lower for the not responsible group, ranging from about 4-12% (Callahan et al., 1991; Pasewark et al., 1979; Pasewark et al., 1982; Pasewark et al., 1987) versus around 15%- 20% for insanity defendants as a whole (Callahan et al., 1991; Pasewark et al., 1987), or 24% for the responsible group (Pasewark et al., 1987). Pasewark et al., (1987) found that 16% of the responsible group was diagnosed with Antisocial Personality Disorder, versus 0% of those found not to be responsible. Some of the past research has found a diagnosis of substance abuse to be significantly lower for the not responsible group, ranging from 3-5% (Callahan et al., 1991; Pasewark et al., 1982; Pasewark et al., 1987), versus 36%( Pasewark et al.,

1987) for the responsible group, or 7%-27% (Callahan et al., 1991; Pasewark et al., 1987) for the pre-trial sample as a whole.

When Steadman et al., (1983) controlled for diagnosis both of their other significant correlations, age and number of previous hospitalizations, fell away. Psychotic patients had a high incidence of prior hospitalizations and tended to fit into the 18 – 39 age group (Steadman et al., 1983). This makes clinical sense, as schizophrenia and delusional disorder are seldom diagnosed (occur) before 18, and often the older psychotic patient experiences some sort of burn out, has an alleviation of positive symptomatology normally associated with criminal acts, is institutionalized, or dies, and thus is not around to commit crimes.

Jeffrey, Pasewark and Bieber (1988) used discriminant analysis to predict psychiatric evaluation, and found that the following factors were related to this discriminant function: schizophrenia ( $R = .64$ ), personality disorder ( $R = -.08$ ), substance abuse ( $R = -.08$ ), psychosexual disorder ( $R = -.05$ ). A correct identification of group membership was obtained in 86% of cases (Jeffrey et al., 1988).

#### **1.4.4 MMPI SCALES**

##### **1.4.4.1 SCALES DISTINGUISHING RESPONSIBLE AND NOT RESPONSIBLE PRE-TRIAL FORENSIC PATIENTS**

Although there has been a fair amount of research analyzing profile configurations of pre-trial forensic patients with the MMPI, there has been extremely little research looking at the predictive ability of the MMPI or MMPI-2 to discriminate between the profiles of those found responsible and not responsible. Much of it has been done using the MMPI, and not the MMPI-2, and thus it is imperative that the later section of this thesis, comparing the two inventories, is kept in mind throughout this paper.

##### **1.4.4.1.1 MMPI STUDIES**

Early studies (see *table 3*) using the MMPI found few differences between the groups. Cooke (1969) found that both the not responsible and responsible group of pre-trial patients had a high point pair of 4-8. Cooke's (1969) Pennsylvania pre-trial sample had high T scores on Pd, Sc, and D. The not responsible group was significantly higher than the responsible group on D, Hy, Pa, Pt, and Sc. No significant difference was found for the Pd scale which was the only scale significantly elevated for both groups. Kurleycheck & Jordan (1980) found no significant differences in MMPI validity and clinical scales, although the profiles of the not responsible group tended to be non-significantly more elevated. They did, however, find significant

differences using the sign test, treating the clinical scales as matched pairs, with the not responsible group tending to have higher scale scores (Kurleycheck & Jordan, 1980). The modal code type for the responsible group was 8-7 with 20% of cases, while it was 8-6 for the non-responsible group with 30% of cases (Kurleycheck & Jordan, 1980), although caution would be advised here, as the sample was very small. Kurleycheck & Jordan (1980) hypothesize that the 8-6 code-types among not responsible defendants suggests the likelihood of strong delusional systems, while scale 7 in the 8-7 code-type of the responsible group may exert an inhibitory effect on any psychotic tendencies. They feel the high number of neurotic high point code-types among the responsible group supports this hypothesis. The grouping of high point codes suggested more homogeneity in the non-responsible group. Rogers and Seman (1983, in Rogers & McKee, 1995) found that sane and insane defendants had extremely similar profiles, which were both elevated on F, Pd, Pt and Sc. Daniel et al. (1984, in Rogers & McKee, 1995) examined unpartialled correlations and discovered no significant differences between those found responsible and not responsible.

In general, studies did not find that the original MMPI scales were significantly correlated with responsibility (Cooke, 1969; Kurleycheck & Jordan, 1980; Rogers & Seman, 1983).

Discriminant analysis also found that MMPI scores, despite significant differences on some scales, were not particularly good at predicting responsibility (Cooke, 1969; Kurleycheck & Jordan, 1980). It is important to remain aware that these studies are somewhat outdated, and also involve a predecessor to the MMPI-2, which on both accounts might create issues around generalizability (see following section on generalizability of MMPI research to MMPI-2)

#### **1.4.4.1.2 MMPI-2 STUDIES**

The only study (see *table 3*) that appears to have examined the ability of the MMPI-2 to discriminate between responsible and not responsible pre-trial forensic patients (Rogers & McKee, 1995), divided their sample up into groups adjudged to have no mental illness, have a major mental illness, to be guilty but mentally ill, and to be insane. The “mentally ill but sane” group tended to have elevations at least as high as the other groups, and the “not mentally ill” group could not be easily differentiated from the not responsible group (Rogers & McKee, 1995).

In general, there was little differentiation between groups in terms of zero order correlations, once their F ratio's had been corrected via the Bonferroni coefficient, although many of the scales did differentiate the not responsible group at  $p < .05$ . The not responsible group did differ significantly ( $p < .0038$ ) from the “major mental illness but sane” group (but not from the “sane and not mentally ill” group) scoring lower on D, Pt and Sc and Si (Rogers & McKee, 1995).

There was also a non-significant but visible variance in responsibility ( $p < .05$ ) on both the Pd and

ANG scales, where the not responsible group scored lower than all three responsible groups (Rogers & McKee, 1995).

**Table 3: Discriminating Between Responsible & Not Responsible Pre-Trial Forensic Patients**

| Study          | Rogers & McKee (1995) ## |                      |                         |        |        | Kurleycheck & Jordan (1980) # |             | Cooke (1969) #  |             |
|----------------|--------------------------|----------------------|-------------------------|--------|--------|-------------------------------|-------------|-----------------|-------------|
| Responsibility | No major mental illness  | Major mental illness | Guilty but mentally ill | Insane | F      | Not Responsible               | Responsible | Not Responsible | Responsible |
| L              | 55                       | 57                   | 54                      | 61     | 1.59   | 49                            | 45          | 48              | 48          |
| F              | 74                       | 89                   | 79                      | 79     | 2.34   | 80                            | 74          | 62              | 56          |
| K              | 46                       | 43                   | 47                      | 48     | 1.4    | 45                            | 43          | 48              | 51          |
| Hs             | 63                       | 74                   | 57                      | 69     | 6.82** | 65                            | 59          | 55              | 52          |
| D              | 65                       | 78                   | 71                      | 67     | 7.04** | 75                            | 72          | 65              | 57          |
| Hy             | 59                       | 70                   | 63                      | 64     | 4.60*  | 64                            | 58          | 58              | 53          |
| Pd             | 70                       | 72                   | 70                      | 62     | 2.18   | 75                            | 73          | 69              | 67          |
| Mf             | 47                       | 51                   | 50                      | 48     | 2.11   | 65                            | 62          | 54              | 52          |
| Pa             | 72                       | 86                   | 85                      | 77     | 3.66   | 79                            | 76          | 60              | 55          |
| Pt             | 67                       | 82                   | 70                      | 63     | 6.24** | 78                            | 74          | 61              | 54          |
| Sc             | 74                       | 89                   | 82                      | 77     | 4.80*  | 90                            | 80          | 70              | 59          |
| Ma             | 57                       | 57                   | 55                      | 54     | .47    | 65                            | 64          | 56              | 57          |
| Si             | 58                       | 67                   | 61                      | 57     | 5.53*  | 59                            | 56          |                 |             |

\* p=.0038

\*\* p<.001

# MMPI (corrected -5)

## MMPI-2

#### **1.4.4.2 USING THE MMPI TO ESTABLISH RESPONSIBILITY IN SUBGROUPS OF PRE-TRIAL FORENSIC PATIENTS**

Cooke (1969; 142) created 3 subgroups of his pre-trial forensic population, dividing them up into (1) Chronic brain syndrome and/or mental deficiency, (2) drug and/or alcohol addiction (3) Remaining patients. Cooke (1969) found that for (1) the mean scores were significantly higher for not responsible patients on Hs, D, Hy, Pd, Pa, Pt, Sc, and yet no differences in IQ, which indicates that the decision of responsibility in this group is not made on intelligence but rather on psychological status. Cooke (1969) found no differences for (2). Cooke (1969) found that the not responsible patients in (3) performed significantly higher on F, D, Pa, Pt, and Sc which implies that the conclusions here were reached based on level of psychopathology for this group. Generally, extremely few patients diagnosed as psychotic were declared responsible. Equally, it was found that the not responsible non-psychotic patients had significantly higher scores than the responsible non-psychotic patients on D and Pt, which are scales reflecting anxiety and depression.

#### **1.4.4.3 DIFFERENCES IN MMPI HIGH POINT PAIRS IN PRE-TRIAL FORENSIC PATIENTS FOUND TO BE RESPONSIBLE OR NOT RESPONSIBLE**

Cooke (1960) found that both the not responsible and responsible group had a mean high point pair\* of 4-8. Kurleycheck & Jordan (1980) (see *table 3*) found that the modal code for the non-responsible group was 8-6 while the responsible group had a modal code of 8-7, while a chi-squared test showed a significant association between classification as responsible or not responsible, and high point code. Butcher & Tellegen (1978) caution against using mean profiles and advocate looking at percentages of high point code types in the sample. Following this, Kurleycheck & Jordan (1980) showed with the MMPI that there was more homogeneity in the not responsible group, with its code types distributed over 7 high points, as opposed to 13 high points for the responsible group. 30% of the not responsible group had 8-6 code types versus only 6% in the responsible group, which shows that the not responsible group has a high percentage of individuals with a delusional mentation. For the responsible group, 8-7 was modal, and the high point code in 20% of profiles, as opposed to being the high point in 15% of not responsible profiles. There were a high percentage of neurotic high point code types for the responsible group, or psychotic profiles with high anxiety scores that perhaps were seen to be able to have an inhibitory effect on psychotic behavior (Kurleycheck & Jordan, 1980).

#### **1.4.4.4 POSSIBLE SUBGROUPS OF PRE-TRIAL FORENSIC PATIENTS FOUND TO BE NOT RESPONSIBLE**

Despite a correlation an assessment of not responsible, and previous hospitalization in a psychiatric hospital, a high percentage of not responsible pre-trial forensic patients in fact have no prior hospitalization, and have at least 1 previous arrest (Pasewark et al., 1979). Pasewark et al. (1979) found that 56% of the men in their sample had no prior psychiatric hospitalization, and 44% had at least 1 previous arrest. This has led them to consider two distinct groups of forensic patients found to be not responsible; the first would include typical subjects for the insanity plea, in other words where the act of criminal behavior is directly associated with a mental disorder (Pasewark et al., 1979). The second group might be representative of the larger criminal population, who like any other occupational group contains members who are mentally ill (Pasewark et al., 1979). Added to this the literature on malingering leads one to consider a third

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High point pairs are traditionally the two highest clinical scale scores in any profile. They are normally viewed as a unit, irrespective of which is higher (i.e. If the two highest clinical scales are Sc = 78T and Pd = 70T, this would be a profile with a 4-8/8-4 code type). For each code-type there is a corresponding “cook book” general interpretation of the main mean characteristics of this code type. Recently, there has been a discussion on whether it is perhaps more appropriate to only use well-defined, elevated code-types. Elevated code types are those where both scales T-scores are above 65, and well-defined code types are those where the scale/scales used (from 1 to 3 scales) are at least 5T score points above the next highest scale score. See *appendix 12* for more detail.

group of mentally sane individuals who are responsible for their crimes but successfully managed to malingering an insanity acquittal. Obviously these groups would require different treatment and placement needs, both for the individuals and for society.

## **1.5 GENERALIZABILITY OF MMPI RESEARCH TO THE MMPI-2**

### **1.5.1 NEED FOR AND CREATION OF MMPI-2**

An extensive restandardization project resulted in a revised and updated form of the MMPI-2 (Butcher, Dahlstrom, Graham, Tellegen, & Kaemmer, 1989). The changes, which are detailed in the research (Ben-Porath & Butcher, 1989; Butcher et al., 1989; Hargrave, Hiatt, Ogard, & Karr, 1994), include the following:

- (1) Deletion of a small number of items that some of the users found objectionable (including religious items, items relating to bowel movements etc.)
- (2) Rewriting of some items to remove sexist or otherwise outdated language, or to make items more easily comprehensible.
- (3) Development of new norms for all the scales, based on a national census-matched sample.
- (4) Creation of a new type of T score called a uniform T score. Uniform T scores were developed so that the clinical scales would all be similarly distributed, which was achieved by identifying an average distribution among the scales and adjusting each individual scale's distribution to fit this composite distribution (Ben-Porath & Butcher, 1989).
- (5) The new norms were found to have an attenuating effect on MMPI-2 scores, resulting in a lowering of the criterion for establishing interpretive elevation in a scale from 70 to 65 (Butcher et al., 1989).

### **1.5.2 SIMILARITIES AND DIFFERENCES BETWEEN MMPI AND MMPI-2 PROFILES**

Studies have compared the MMPI and MMPI-2 using peace officers (Hargrave et al., 1994) students (Ben-Porath & Butcher, 1989; Chojnacki & Walsh, 1994) comparing Anglo & Hispanic students (Whitworth & McBlaine, 1993), psychiatric patients (Butcher et al., 1989; Graham, Timbrook, Ben-Porath & Butcher, 1991; Harrell, Honaker & Parnell, 1992; Ward, 1991), chemical dependence psychiatric inpatients (Ladd, 1994), psychiatric outpatients (Edwards, Morrison, Weissman, 1993), community sample (Dahlstrom, 1992; Ben-Porath & Butcher, 1989; Graham et al., 1991) and forensic subjects up for court review (Humphrey & Dahlstrom 1995). Most results have tended to conclude a substantive congruence between the cross administration

stability of scores and profiles obtained between the two groups (Ben-Porath & Butcher, 1989; Butcher et al., 1989; Chojnacki & Walsh, 1994; Graham et al., 1991; Hargrave et al., 1994; Harrell et al., 1992; Ladd, 1994; Whitworth & McBlaine, 1993). However, this has been somewhat contentious, with other research questioning the comparability of the MMPI and MMPI-2 (Dahlstrom, 1992; Edwards et al., 1993; Humphrey & Dahlstrom 1995; Ward, 1991).

The substantive differences in conclusions of some authors appear to be more due to methodological differences as opposed to different data, and indeed various authors have come to different conclusions on the same data sample (Ben-Porath & Tellegen, 1995; Butcher et al., 1989; Dahlstrom & Humphrey, 1996; Humphrey & Dahlstrom, 1995; Tellegen & Ben-Porath, 1996; Ward, 1991).

Research has tended to compare the MMPI/MMPI-2 by either getting subjects to fill in the AX form (Butcher et al., 1989) used for norming of the MMPI-2, which has all the items from the MMPI and MMPI-2 on it, or have administered both the MMPI and MMPI-2. Generally, the point of comparison for comparing the MMPI/MMPI-2 congruence has been against the short-term test-retest reliability of the MMPI.

General trends have shown that MMPI scale T-scores tend to be 3-5 points higher (Ben-Porath & Butcher, 1989; Harrell et al., 1992), which has led to the recommendation that 5 points be subtracted from MMPI scales in order to compare them to MMPI-2 scales. Equally, the new standardized T-scores have led to a general flattening of profiles, which has led to a reduction of the clinical significance cut-off score to 65. However, Chojnacki & Walsh (1994) found that this trend was not true for the Harris-Lingoes subscales, which achieved surprisingly high correlations between the MMPI and MMPI-2. It was suggested that this had to do with both the fact that item deletions did not (with the exception of the Pd scale) tend to affect these scales heavily and the fact that they are too short to evidence changes in response patterns, and the recommendation has been that 5 points not be subtracted from the MMPI when comparing these scales with the MMPI-2 at least until further research is conducted (Chojnacki & Walsh, 1994). Studies have tended to focus on whether the same basic shape is achieved on the MMPI-2 as on the MMPI, which has largely led to analysis of high point scores, and of elevations.

In order to compare the stability of the clinical profile, several characteristics were compared between the MMPI-2/MMPI and the MMPI/MMPI, for both men and women. In general, studies have tended to show no significant differences for Spearman rank order correlation coefficients

(Harrell et al., 1992), the percentage of subjects with the same high point in both administrations (Ben-Porath & Butcher, 1989; Hargrave et al., 1994), the stability of one-point and/or two-point and/or three-point codes (Ben-Porath & Butcher, 1989; Butcher et al., 1989; Edwards et al., 1993; Graham et al., 1991; Hargrave et al., 1994; Harrell et al., 1992; Ladd, 1994), the percentage of subjects classified as having a normal limits profile (Ben-Porath & Butcher, 1989; Hargrave et al., 1994), percentage of subjects producing the same number of elevated scales in both administrations, and the computation of the  $D^2$  index as described by Wiggins (1973, in Ben-Porath & Butcher, 1989), which is a measure of the similarity in elevation, shape and scatter between the two profiles (Ben-Porath & Butcher, 1989; Harrell et al., 1992). Although Ben-Porath and Butcher (1989) found that the high point code correlations for women were significantly higher for MMPI-MMPI comparison as opposed to MMPI/MMPI-2 comparison, this was also attributed to an unusually high level of stability of this sample that has not been repeated in the literature.

Whitworth & McBlaine (1993) showed that although their large sample of Hispanic and Anglo college students differed significantly on 9 of the 13 traditional validity and clinical scales, these differences were of a small magnitude, never exceeding 5 T-score points with most less than 2 T-score points. They concluded that separate norms for Hispanics and Anglos were not necessary for either the MMPI or MMPI-2, as well as revealing that although there continue to be some differences between Hispanics and Anglos, both on the MMPI and MMPI-2, these differences are consistent for both forms of the test (Whitworth & McBlaine, 1993).

However some research has indicated some differences between MMPI and MMPI-2 profiles (Dahlstrom, 1992; Edwards et al., 1993; Ward, 1991). It is thus plausible that these two measures may not be equivalent with some populations (Shea & McKee, 1996), at least pertaining to some of the scales, and it may prove prudent to be cautious when making these comparisons.

### **1.5.3 DEBATE ON CONGRUENCE BETWEEN THE MMPI AND MMPI-2**

It is beyond the scope of this dissertation to provide an in-depth review of the generalizability of the MMPI literature to the MMPI-2. However, since much of a well-chronicled debate involved a comparison of a pre-trial forensic sample, as well as an understanding of the benefits of well-defined code types, *appendix 11* and *appendix 12* will give some indication of the intricacies of this comparison, through a description of a debate that has been ongoing for quite some time now.

### **1.5.4 COMPARING THE MMPI AND MMPI-2 WITH PRE-TRIAL FORENSIC PATIENTS**

Shea and McKee (1996) contrasted the T-scores they obtained from the MMPI-2 with those obtained on a similar population group by Holcomb et al. (1984) with the MMPI. The T scores collected by Holcomb et al. (1984) were adjusted down by 5 points to allow for direct comparison. The profiles appeared similar in shape and in most scale deviations although no statistical measures were performed (Shea & McKee, 1996). Both sets of profiles had the same high points of scales 6 and 8, with 4 and 7 also being elevated in both. However, scale L and D were slightly more elevated in the MMPI-2 sample, with scale 8 slightly higher in the MMPI sample (Shea & McKee, 1996).

## **1.6 LEGAL RAMIFICATIONS OF THE INSANITY DEFENSE**

### **1.6.1 U.S.A. AND S.A. LAW ON THE INSANITY DEFENSE**

Since most of the studies cited in this literature review are from U.S.A. it is necessary not just to outline the insanity defense in S.A., but also to compare it to the *status quo* in U.S.A. The insanity defense in both S.A. and U.S.A is based on English law.

#### **1.6.1.1 INSANITY DEFENSE IN UNITED STATES OF AMERICAN**

In American law it has generally been necessary for the defense to prove either that the accused could not appreciate the wrongfulness of his actions (*mens rea*), and/or act in accordance with this appreciation (*actus reus*) (Africa, 2000). Both the McNaughton rules and Durham Rule were felt to have shortcomings, and arguably allowed psychiatrists too much scope in determining responsibility (Africa, 2000; 15). This led to the American Law Institute Test (American Law Institute Model Penal Code, Section 4.01; cited in Africa, 2000) that states:

A person is not responsible for criminal conduct if at the time of such conduct as a result of mental disease or defect he lacks substantial capacity either to appreciate criminality (wrongfulness) of his conduct or to conform his conduct to the requirements of law.

Africa (2000) points out that this means that he only has to lack “substantial” capacity, and also acknowledges that lack of control can extend over a long period of time. Currently, each state controls its own insanity defense, within certain constitutional limits, and thus there are differences in both plea and acquittal rates, which surprisingly seem to result in similar percentages of total criminal behavior ending in acquittal on grounds of insanity (Africa, 2000).

#### **1.6.1.2 INSANITY DEFENCE IN SOUTH AFRICA**

The roots of S.A.’s insanity defense lies in English law and the McNaughton Rules, which was later broadened to include the ‘irresistible impulse’ rule (Africa, 2000). The assassination of

President Hendrik Verwoerd by a mentally ill person led to the creation of the Rumpff Commission, which subsequently led to Section 78(1) of the Criminal Procedure Act 51 of 1977 which states:

A person who commits an act which constitutes an offence and who at the time of such commission suffers from a mental illness or mental defect which makes him incapable

- (a) of appreciating the wrongfulness of his act; or
- (b) of acting in accordance with an appreciation of the wrongfulness of his act,
- (c) shall not be criminally responsible for such an act.

Thus, it is quite similar to the American Law Institute Test, and implies the presence both of a biological component (presence of mental illness) and a psychological component (impairment of cognitive and /or conative functions), as well as making provision for testimony of a psychiatrist. Typically, a person has been declared mentally ill in terms of the Mental Health Act 18 of 1973. However, Snyman (2002) correctly mentions that being declared mentally ill by this act does not necessarily imply that he is also mentally ill in terms of the Criminal Procedure Act 51 of 1977, as this act has to establish *both* the psychological *as well as* the biological component of the defense.

A distinction also needs to be made between pathological criminal responsibility and non-pathological criminal responsibility. In essence the defenses differ depending on whether the defense is claiming that the defendant was suffering from a mental illness, or, in the case of non pathological criminal responsibility, where other circumstances such as emotional stress might lead to a situation where conative and/or cognitive functioning is impaired (Africa, 2000; Snyman, 2002).

Apart from lacking pathological or non-pathological criminal responsibility, defendants in S.A. can also be acquitted due to sane or insane automatism, or occasionally provocation. They may also achieve a mitigation of sentence through a plea of diminished responsibility (Africa, 2000; Snyman, 2002). Section 78 (7) of the Criminal Procedure Act 51 of 1977 states that:

If the court finds that the accused at the time of the commission of the act in question was criminally responsible for the act but that his capacity to appreciate the wrongfulness of the act was diminished by reason of mental illness or mental defect, the court may take the fact of such diminished responsibility into account when sentencing the accused.

Clearly, a successful plea here would not lead exculpation, but rather to a reduced sentence (Africa, 2000). As mentioned above, different states in U.S.A have different legislation that governs the insanity plea. However, the studies quoted in this review appear to be based on legislation that at least makes them comparable enough to S.A. law that the data is useful in casting some light on what we might expect to find in a South African situation.

### **1.6.2 LEGAL PROCEDURE FOR THE INSANITY DEFENCE IN SA**

Pragmatically speaking, if the legal representative (for example after consultation with the accused or a family member) is of the view that his client might suffer from a mental illness of mental defect, he usually brings that fact to the attention of the prosecutor or state advocate, as the case may be, prior to the charge being put to the accused. The legal representative of the accused then brings an application before the trial court and requests that the accused be sent for observation in terms of the Criminal Procedure Act 51 of 1977. The court tends to let the case stand down, and to refer the accused for examination by the district surgeon. If the doctor supports the findings of the accused's legal representative, then he recommends that the accused be sent for 30-day observation in terms of section 77 (Criminal Procedure Act 51 of 1977).

During this time he will be observed and tested, and a psychiatrist, in consultation with a multidisciplinary team, will file an observation report including information on three issues:

- (a) Presence of any Major Mental Illness
- (b) Whether the defendant is fit to stand trial
- (c) Whether the defendant was criminally responsible at the time of the instant offence. If not, whether there are grounds for diminished responsibility.

Generally speaking, the court accepts the opinion of the psychiatrist regarding the accused's fitness to stand trial. If the accused is unable to stand trial due to a mental illness resulting in a current inability to understand right from wrong and act in accordance with that appreciation, he is declared a State Patient and incarcerated in a psychiatric hospital. If the report states that the accused is fit to stand trial, but lacking in criminal responsibility at the time of the offence, the prosecution presents evidence after the accused has entered his plea. The court, assuming they rule that the accused indeed committed the crime, may find that the accused is guilty, not criminally responsible, or had only diminished criminal responsibility. If lacking pathological criminal responsibility he would be sent to a psychiatric hospital, and if lacking non-pathological criminal responsibility he would be set free. It is possible, depending on the course of the mental illness, that a forensic mental patient is eventually released upon recommendation by a psychiatrist, which needs to be vetted by the court (Africa, 2000). Lastly, a person who is found guilty of committing a crime can also be sent to a psychiatric institution in terms of section 9 of the Mental Health Act 18 of 1973, where it is felt that the person is currently mentally ill.

### **1.6.3 THE CRIMINAL MATTER AMENDMENT ACT 68 OF 1998**

An understanding of the Criminal Procedure Act 51 of 1977 and the Mental Health Act 18 of 1973 have been included as these were the legislation in place when most of the sample used for

this study was referred for psychiatric observation. However, there is a new legislative act, the Criminal Matters Amendment Act 68 of 1998 (*appendix 13*), which amends both the Criminal Procedure Act 51 of 1977 and the Mental Health Act 18 of 1973, which came into effect on 28 February 2002. This new legislation has many changes, though perhaps the most significant to this dissertation is that it underlines that the onus of proof in an insanity plea rests on the accused.

#### **1.6.4 WHAT IS ‘RESPONSIBLE’?: THE LINK BETWEEN LAW AND MEDICINE**

The primary legal criteria that have to be discriminated between in legal proceedings involving pleas of insanity, is whether the defendant is found to be criminally responsible and thus guilty, or criminally not responsible. Many different terms have been used to describe this divide, including incompetent, unfit, and Not Guilty by Reason of Insanity (NGRI), but responsible versus not responsible is used most in both legal and forensic psychiatric settings in S.A. The degree of similarity between criteria for being found not responsible in SA versus U.S.A./Canada has been discussed above.

#### **1.6.5 WHAT MENTAL DISORDERS ARE ELIGIBLE FOR THE INSANITY DEFENCE?**

In USA and in SA some disorders are excluded by statute from forming part of the insanity defense, where they are characterized solely by repeated antisocial or criminal behavior or are induced by the voluntary ingestion of alcohol or other psychoactive substances (Pasewark et al., 1987). In SA all Axis II disorders are not considered grounds for the insanity defense, and substance abuse is only considered where the substance was ingested involuntarily.

#### **1.6.6 RATES OF SUCCESS WITH THE INSANITY DEFENCE**

In USA successful use of the insanity defense is infrequent (see *table 4*). The amount of people utilizing the insanity plea in the first place is around 1% (Callahan et al., 1991; Janofsky et al., 1989), although in some samples it has been lower (Pasewark et al., 1987). The insanity defense appears to be successful in around 10 – 28% of these cases (Callahan et al., 1991; Janofsky et al., 1989; Pasewark et al., 1987; Steadman et al., 1983). It has proved difficult to get an accurate national figure on the success of the insanity plea in SA, partly because many of the minor cases do not go for observation (Director of Public Prosecution, 2002). However, of those cases that were referred for observation in the Western Cape from 1997 to 2002, the annual success rate of the insanity plea has been comparable to the USA, with annual success rate ranging from 13 to 26% and having a mean of 17.5% (Director of Public Prosecution, 2002). Interestingly enough, in one of the few studies to look at the insanity defense in a number of states, it was found that the success rate of the insanity defense was inversely proportionate to the percentage of criminals

utilizing it, which makes sense if we are to assume that the proportion of criminals that are not responsible for their actions is roughly even throughout the USA, and that the legislation dealing with the insanity defense does not differ too significantly from state to state in terms of final adjudication. Pasewark's (1987) Colorado sample of pre-trial forensic patients represented only 0.03% of the arrests made state-wide, which would mean that the successful acquittees would represent only .007% of these arrests although a more meaningful figure to compare it to might be number of indictments, trials or convictions.

**Table 4: Successful Pleas**

|                       | Steadman et al. (1983) | Callahan et al. (1991) | Janofsky et al. (1989) | Pasewark et al. (1987) |
|-----------------------|------------------------|------------------------|------------------------|------------------------|
| % using insanity plea | -                      | 1%                     | 1.2%                   | .03%*                  |
| % successful          | 26%                    | 26%                    | 10%                    | 27%                    |

\*The reason that this figure is low is that this was based on total arrests made, rather than number of trials or indictments, which would be a more useful indicator (Pasewark et al., 1987).

### **1.6.7 COURT AND PSYCHIATRIC AGREEMENT**

Research in USA has generally found a high concordance between court decisions and that of psychiatric examiners (see *table 5*) with concordance rates ranging from 88%-99% for responsible, 83%-97% for not responsible and 88%-99% overall (Jeffrey et al., 1988; Pasewark et al., 1987; Steadman et al., 1983). Psychiatric evaluation is also by far the factor most strongly associated with a successful insanity plea (Steadman et al., 1983). Some research (Steadman et al., 1983) view this as being due to the influence of the psychiatric recommendation, while others (Pasewark et al., 1987) feel it could have more to do with the growing number of clearly differentiating variables between the two groups, which are in accordance with the statutes. Either way, it means that demographic, criminal and clinical correlates can be compared to psychiatric evaluation, where it is not possible to get hold of the court adjudication results.

**Table 5: Correlation Between Psychiatric & Court Finding**

|                 | Steadman et al. (1983) | Janofsky et al. (1989) | Pasewark et al. (1987) and Jeffrey et al. (1988) |
|-----------------|------------------------|------------------------|--------------------------------------------------|
| Overall         | .93                    | .99                    | .88                                              |
| Responsible     | .98                    | .99                    | .88                                              |
| Not responsible | .83                    | .97                    | .89                                              |

## **1.7 CONTEXT AND NEED FOR THOROUGH FORENSIC ASSESSMENT IN SA FORENSIC SETTINGS**

### **1.7.1 CRIME IN SOUTH AFRICA AND MISTRUST OF THE INSANITY PLEA**

South Africa (S.A.) has one of the highest crime rates in the world. Although police allege that they are content with S.A.'s latest crime statistics, opposition parties claim that the latest figures

mask the extent of the country's criminal problem (Cape Argus; 3). Current statistics show that the incidence of murder is officially at 47.4 persons per 100 000, attempted murder 69.3, robbery with aggravating circumstances at 258.5, rape at 119.4, assault with intent to do grievous bodily harm at 584.9, and common assault at 580 (Cape Argus, 3). These figures lead to concern about several aspects of the criminal justice system, including whether enough of the Gross Domestic Product is allocated towards training and personnel to fight crime, for the legal system to process criminals, and for the prison system itself. Separate from this is the general public's lack of comfort with the insanity plea, largely due to ignorance of what the circumstances are around when it can be used and how successful it is, and what rehabilitation of this small subsection of the criminal population actually implies. There are also concerns with the Ministry of Correctional Services in the placement, treatment and rehabilitation of prisoners, which has a budget of over 6.5 billion rand, and approximately 180 000 prisoners in their care (Ministry of Correctional Services, 2002). Assault of prisoner on prisoner and staff on prisoner is high, as is HIV/AIDS, tuberculosis and escape, brought on partly due to the stresses of a poor total personnel to prisoner ratio of around 1:6.5, and prisons that are overcrowded by 64% (Ministry of Correctional Services, 2002).

## **1.7.2 STATUS OF MMPI AND MMPI-2 RESEARCH IN SA**

### **1.7.2.1 GENERAL RESEARCH ON MMPI AND MMPI-2 IN SA**

There is an extreme poverty of literature on the MMPI in a South African (S.A.) context, with only one published article actually addressing forensic populations. Overall, a thorough literature search of completed and current research turned up only 18 research articles completed, and one work in progress translating the MMPI-2 into Xhosa.

Many of these studies are not pertinent to this dissertation, but a few examined the discriminative ability of the MMPI. Davies (1991) discovered that physically handicapped people scored significantly higher on many of the basic MMPI validity and clinical scales, including scales L, F, K, Hs, Mf, Pa & Sc. Theron (1979) found that the MMPI could not distinguish between preoperative transsexuals and homosexuals.

Shillington (1989) translated the MMPI into Afrikaans using the back-translation method and found that the test-retest reliability of the Clinical and original Validity indices was good, with significant differences to the American norms for demographic criterion, norms and cut-off values. McAinsh (1993) utilised this Afrikaans MMPI (AMMPI) to compare coloured and white ethnic groups, age groups, and gender, on three supplementary scales of ego strength, anxiety and

repression, as well as comparing them to the USA normative sample. Coloured South Africans were found to score lower on the ego strength (Es) and repression (Re) supplementary scales, and higher on the anxiety (A) supplementary scale, and males scored lower on Re and higher on Es, and older respondents scored higher on Es and Re and lower on A. The conclusions by McAinsh (1993) were that these AMMPI scales could be seen to accurately predict extra test variables surrounding repression, ego strength and anxiety. When compared to the USA normative sample, the S.A. sample were found to score lower on the Es scale and higher on the A scale, which McAinsh (1993) concluded, in the light of previous research, was a fair reflection of prediction of the extra test variables of anxiety and ego strength. However, these differences were attributed to different social norms, external situational stressors, and perceptions, rather than a greater level of inherent pathology (McAinsh, 1993).

#### **1.7.2.2 FORENSIC RESEARCH USING THE MMPI AND MMPI-2 IN SA**

Only two forensic studies have been conducted with the MMPI in S.A. Swanepoel (1977) used the MMPI, together with the Thematic Apperception Test, in an attempt to diagnostically evaluate the personality structure of a small group of released prisoners. Due to small sample size, this study provides data that is perhaps of more use in providing qualitative information, and should quantitative data should be reviewed with reservation. Nevertheless, it was reported that the modal high point pairs of 4 – 9 were significant for this sample, with the neurotic triad of 1, 2 & 3 also elevated.

Welman (2000) in an unpublished study used several measures including the MMPI-2 to compare 4 groups of inmate sexual offenders, namely a single offence group, serial rapists, rapists where rape was not the offence that was the primary motive, and gang rapists. Demographic, criminal and clinical features differentiated better between these groups than MMPI-2 scores. Serial rapists had entrenched pathological patterns of interacting with the world, including enuresis, fire setting, cruelty to animals and destruction of own possessions (Welman, unpublished). Felony rapists were more likely to have prior records of other serious crimes against persons such as car-jacking and armed assault, violent offences against persons, and gang rapists were more likely to have been involved in delinquent crimes inculcating shoplifting and housebreaking (Welman, unpublished). Conclusions were that personality traits alone did not discriminate between 4 types of rapist groups, but that significantly different profiles can be constructed by using both behavioral and emotional patterns that dated back to their formative years (Welman, unpublished).

## **CHAPTER 2: METHOD**

### **2.1 INSTRUMENT – MMPI-2**

#### **2.1.1 HISTORY OF MMPI**

The Minnesota Multiphasic Personality Inventory is a personality inventory developed during the late 30's and early 40's in the U.S.A. in Minnesota by Mckinley and Hathaway (1944, in Greene, 2000) to serve as a screening instrument for the differential diagnosis of psychopathology (Wright et al., 1997). By 1995 the body of empirical literature on the MMPI already encompassed well over 7500 publications (Ben-Porath & Graham, 1995). The MMPI (and MMPI-2) continues to be the most widely used personality test in both psychiatric and forensic settings (Holcomb et al., 1984; Moskowitz, 1999; Schmalz et. al., 1989; Wright et al., 1997), including in pre-trial forensic evaluations (Borum & Grisso, 1995; Shea & McKee, 1996). They have been used to determine type and severity of pathology as well as malingering (Wright et al., 1997). Ben-Porath and Graham (1995; 1) state “with confidence that no psychological test rests on stronger scientific foundations than the MMPI and its updated version the MMPI-2”. This scientific basis is particularly important in forensic settings.

#### **2.1.2 T SCORES**

A number of scales have been derived to measure various pathognomic indicators. Raw scale scores reflect the number of items on a particular scale that are scored in the pathology indicating direction (Wright et al., 1997). These are then translated into T-Scores, which are scores that have been ‘standardized’ by calculating how many standard deviation units the patients raw score lies above or below the mean (Wright et al., 1997). The T-score has a mean score of 50, with a standard deviation of 10T score points. The ‘clinical threshold’ on the original MMPI was 70, but research has now suggested that a T-Score of 65 (1 and a half standard deviation units) is clinically significant for the MMPI-2 (Wright et al., 1997). Indeed, research has shown that the MMPI and MMPI-2 are loosely equitable (see relevant section) if we subtract 5 T score points from each scale on the MMPI profile.

A brief overview of the various types of scales in the MMPI and MMPI-2 is provided below. For an overview of the main validity, clinical, content and supplementary scales, see *appendix 14*.

### **2.1.3 SCALES**

#### **2.1.3.1 VALIDITY SCALES**

The MMPI-2 has 4 basic validity measures that were also present with the MMPI. They are designed to discover distortions from the true mental state, in the areas of:

- (1) Random responding, including the Cannot Say (?) scale, Variable Response Inconsistency (VRIN) Scale, and True Response Inconsistency (TRIN) Scale
- (2) Faking good (appearing less 'bad' or pathological), including the Lie (L) scale and Defensiveness (K) scale.
- (3) Faking bad (appearing more 'bad' or pathological), including the Infrequency (F) scale and Backpage Infrequency (Fb) scale.

#### **2.1.3.2 CLINICAL SCALES**

The original labels of the clinical scales are somewhat prejudicial to mental health and legal professionals alike (Wright et al., 1997). This is due to firstly to the fact that the names are now dated (e.g. 'hysteria'). Secondly, there is often an erroneous belief that the MMPI is a diagnostic instrument (e.g. that an elevated score on the 'schizophrenia' scale implies that the patient suffers from schizophrenia'. In fact, the clinical scales were derived statistically as items that were endorsed by specific diagnostic groups, which discriminated them from the general population (e.g. "I am neither gaining nor losing weight" was endorsed by people diagnosed as having a psychopathic personality, which was thus used as an item in scale 4). Thus, the scales are composed of items *endorsed*, for example, by a particular clinical population, rather than items typically associated with a particular disorder (Butcher, Graham, Williams, Ben-Porath, 1990). These are the Hypochondriasis (Hs; 1) scale, Depression (D; 2) scale, Hysteria (Hy; 3) scale, Psychopathic Deviate (Pd; 4) scale, Masculinity-Femininity (Mf; 5) scale, Paranoia (Pa; 6) scale, Psychasthenia (Pt; 7) scale, Schizophrenia (Sc; 8) scale, Hypomania (Ma; 9) scale, and Social Introversion (Si; 0) scale.

#### **2.1.3.3 CONTENT SCALES**

Unlike the Clinical Scales, the Content scales had their item content identified rationally to reflect symptoms that were normally associated with a particular syndrome, before removing any items that detracted from convergent validity (Butcher et al., 1990). This means that the item content is far more obvious than the clinical scales, which also helps to identify those clients who are asking for help, but makes it easier to malingering any given scale (Butcher et al., 1990; Graham, 2000). The Content scales are Anxiety (ANX) scale, Fears (FRS) scale, Obsessiveness (OBS)

scale, Depression (DEP) scale, Health Concerns (HEA) scale, Bizarre Mentation (BIZ) scale, Anger (ANG) scale, Cynicism (CYN) scale, Antisocial Practices (ASP) scale, Type A (TPA) scale, Low Self-Esteem (LSE) scale, Social Discomfort (SOD) scale, Family Problems (FAM) scale, Work Interference (WRK) scale, and Negative Treatment Indicators (TRT) scale.

#### **2.1.3.4 SUPPLEMENTARY SCALES**

There are a host of supplementary scales measuring different phenomenon, which include Welsh anxiety (A) scale, Welsh Repression (R) scale, Ego Strength (Es) scale, MacAndrew Alcoholism (MAC-R) scale, revised, Over controlled-Hostility (O-H) Scale, Dominance (Do) scale, Social Responsibility (Re) scale, College Maladjustment (Mt) scale, Masculine Gender Role (GM) scale, Feminine Gender Role (GF) scale, Post Traumatic Stress Disorder (PK) Scale, Post Traumatic Stress Disorder (PS) Scale, Marital Distress (MDS) scale, and Addiction Potential (APS) scale.

#### **2.1.4 VALIDITY AND RELIABILITY OF MMPI-2**

The MMPI-2 is a sound instrument with a satisfactory correlation to the MMPI, good test-retest reliability over short periods of time, and can be readily defended in the courtroom with respect to its standardization, reliability and validity (Weiner, 1995). Although no personality test has stronger scientific foundations than the MMPI-2 (Ben-Porath & Graham, 1995), it has not yet been examined satisfactorily with a forensic population with respect to demographic subgroup norms (no information here for S.A.), long-term temporal stability, and predictive validity (Weiner, 1995). There are no norms for a S.A. population administered the MMPI-2 in English where this is not their home language, and thus it is hard to be able to comment on the precise reliability and validity as regards this sub-population. However, research has been done on certain S.A. populations, on many (not S.A.) second language populations, and on norming of the MMPI-2 into many foreign languages. This research points towards the likelihood that the MMPI-2 will have validity and reliability for the above-mentioned sample.

#### **2.1.5 FLUCTUATIONS IN SCALES ACROSS POPULATION SUBGROUPS**

(See *appendix 15* for prediction of extra-test correlates)

##### **2.1.5.2 GROUP DIFFERENCES ON MMPI/MMPI-2**

###### **2.1.5.2.1 ETHNICITY**

Although separate ethnic and other groups were treated as a composite group in the standardization of the MMPI-2 for all facets of the MMPI-2, separate norms were also

published for the standardization sample for both males and females for European Americans, African Americans, Native Americans, Hispanics and Asians (Butcher et al., 1989; Butcher & Williams, 1992), although not for specific population samples such as forensic samples. A study by Hall, Bansall and Lopez (1999) concluded that MMPI-2 differences among African Americans, European Americans and Latino Americans were trivial. With specific reference to my dissertation, in no case did Hall et al. (1999) find that an effect size for any subset of studies (e.g. forensic versus other settings), reach a medium effect size, and studies from homogenous settings also tended in general to yield smaller between-ethnic groups differences in forensic settings than in other settings, which makes it unlikely that there are major ethnic differences in self-reported pathology in psychiatric, forensic and other settings. Either way, many even of these small effect sizes fall away once an attempt is made not to look for differences between scale scores of different ethnic groups, but rather at whether or not scale scores are predicting extra-test variables equally well (see *appendix 15*). Timbrook & Graham (1994) determined how well MMPI-2 scores predicted extra-test variables and found that the only difference occurred on scale 7 with African-Americans getting comparatively lower scores than what their behavior revealed.

#### **2.1.5.2.1.1 FORENSIC ETHNIC DIFFERENCES**

Shea et al. (1996) investigated (extra-test) ethnic differences between Caucasian and African American pre-trial men and found no differences on age, type of pending charges, level of education, or court opinion regarding mental state. Against this backdrop, most research on MMPI-2 scales has found little or few ethnic differences on content and clinical scales in pre-trial forensic samples, with little research having examined supplementary scales (Graham, 2000). Differences that were found were small, and included Caucasian Americans scoring significantly higher on Hs, D, Hy, Si, ANX, DEP, HEA, LSE, SOD (Shea et al., 1996), and African-Americans scoring significantly higher on F, Pd, Pa and Sc (Holcomb et al., 1984), O-H (Hutton et al., 1992), 9 (Shea et al., 1996; Shondrick et al., 1992, in Shea et al., 1996), ASP (Ben-Porath, Shondrick & Stafford, 1995; Shondrick et al., 1992, in Shea et al., 1996), and CYN (Ben-Porath et al., 1995; Shea et al., 1996; Shondrick et al., 1992, in Shea et al., 1996).

Ben-Porath et al. (1995) analyzed ASP and CYN (which were the scales most often to have been shown to differ significantly) in terms of subscales, and it was discovered that African – Americans scored significantly higher than European-Americans on the CYN subscale of Misanthropic Beliefs (skepticism about motives and goodness of people), but not on Interpersonal Suspiciousness, and on the ASP subscale of Antisocial Attitudes, but not Antisocial

Behavior, and noted that without extra test correlates they could not conclude definitively that African-Americans held more antisocial and cynical attitudes, and noted that in general the two ethnic groups produced highly comparable results.

#### **2.1.5.2.2 GENDER**

Shondrick, Ben-Porath & Stafford (1992, in Wright et al., 1997) found no differences between males and females on validity, clinical and content scales for a sample of pre-trial and post trial forensic defendants. The MMPI-2 (Butcher et al., 1989; Butcher & Williams, 1992) has separate norms for population groups for males and females, and should be interpreted accordingly.

#### **2.1.5.2.3 LANGUAGE**

The effects of answering the MMPI-2 in a second or third language has not been thoroughly explored, with most work focusing on standardizing the MMPI-2 in different languages. The effect of different languages on interpretation of MMPI-2 questions is beyond the scope of this thesis. However, Boscan et al. (2002) used the official “Mexican” Spanish adaptation of the MMPI-2, which has indicated excellent test-retest reliability across all scales. Boscan et al. (2002) found that both samples were able to respond to the language in this particular Spanish version of the MMPI-2 and did not object to any of the items, and they believe that it can be used across the large and diverse language population of Mexico. The MMPI-2 should not be used if the clinician feels that the person cannot comprehend the language well enough to answer the questions accurately. The VRIN & TRIN scales would be likely to pick up any inconsistency in test scores due to incomprehension.

#### **2.1.5.2.4 EDUCATION**

Shondrick, Ben-Porath & Stafford (1992, in Shea et al., 1996) found only minor differences between different educational levels for pre-trial or post trial forensic males, with the higher education sample scoring higher on scale Mf, and lower on scales CYN and ASP. A minimum of a grade 8 level of education is necessary for the MMPI-2 (Butcher et al., 1989), although there are audio versions that can be administered to lower education levels.

#### **2.1.5.2.5 AGE**

The original MMPI was used with adolescents, and criticism of this meant that when the MMPI-2 was established, the MMPI-A was created for use with those under 18 (Graham, 2000). Most research with older persons has shown that older persons seem to obtain higher scores on 1,2,3 and 0, and lower scores on 4 & 9 (Graham, 2000). This may not be due to

increased pathology but rather to realistic increases in concern for health and decreases in activity and energy.

#### **2.1.5.2.6 INTELLIGENCE QUOTIENT**

The MMPI-2 should not be administered to anybody with an IQ less than 70 (Butcher et al., 1989).

#### **2.1.5.2.7 SOCIO-DEMOGRAPHIC VARIABLES IN GENERAL**

Hall et al., (1999), in their meta-analytic study of ethnic differences, found that matching for socio-demographic differences had remarkably little effect, which might lead one to hypothesize that in general they are not significant in USA. However, obviously this might not generalize to a different country with markedly different social, economic, ethnic, political as well as education factors, which means that caution needs to be exercised when generalizing from USA to SA.

#### **2.1.6 MEGARGEE TYPOLOGIES**

Cases were classified individually into the 10 typologies for males and 9 typologies for females, set out by Megargee et al. (2001), according to the rules for MMP-2 profiles (See *appendix 16 & 17* for classification into typologies). All classification criteria for the Megargee typologies are based on the clinical scales of the MMPI-2 (and before this the MMPI). In terms of the primary rules, each profile must be classified into each typology, as it may well be multiply classified (fit the rules for more than one classification group). There are separate classification rules for male and female profiles, although the profiles look similar within one typology, irrespective of gender (there are some differences). If a profile fits no classification typology, it is classified as unclassifiable. If it is only classifiable into a single typology, then that is the typology that it is classified under. If it is multiply classified, it is then further graded by secondary rules, which assign a level according to how well the profile fits the rules for the typology, and this is subdivided into minimum, low, medium and high. Where it fits a particular typology better than any other, this is the typology that it will be classified under. Where the profile fits 2 or more typologies equally well (for example, where it fits How and Charlie both with medium accuracy, and Jupiter with low accuracy, How and Charlie would be selected), then (3<sup>rd</sup> level) tiebreak rules are assigned to classify profiles.

## **2.2 POPULATION AND SAMPLING**

### **2.2.1 POPULATION**

The sample used was acquired from the records of all pre-trial forensic patients who were sent for 30- day psychiatric observation at Sterkfontein Psychiatric Hospital and were also administered the MMPI-2. The purpose of the observation period is for the hospital to reach a conclusion as to the mental state of the patient at the time of the crime, and the current mental state of the patient, in order to provide specialist information to the courts. The MMPI-2 was first used at Sterkfontein Hospital in 1994, and records were obtained right up until October 2002.

It was decided that data would only be admitted when it was found to have been administered, scored, and interpreted by people properly trained to do so. It was decided that profiles would be excluded if psychological reports showed that the accused had an IQ under 70 (Butcher et al., 1989; Greene, 2000, Graham, 2000), was under 18 years of age (Butcher et al., 1989; Greene, 2000, Graham, 2000), did not have an adequate grasp of English to complete the MMPI-2, had less than a grade 8 level of education (Butcher et al., 1989; Greene, 2000, Graham, 2000), or where, for any other reason clinical personnel were unsure of the ability of the subject to complete the MMPI-2. IQ is determined by Sterkfontein Hospital as part of the total forensic assessment, and it is acknowledged that the determination of this can be subjective and problematic, as it was not always obtained through extensive testing, but sometimes estimated through the clinical interview. Functional literacy in English is also a problematical concept, and yet one that is widely used in the applied setting of SA psychiatric hospitals, and will be assumed in this study where interviews were conducted in English, and where Sterkfontein Hospital decided the patient had enough English to be able to complete the MMPI-2. Data was collected from file records, and there was no contact with any subjects whatsoever. Because of this, the clinical opinion and integrity of the Sterkfontein Hospital Clinical staff was relied upon. It was discovered that they applied more stringent exclusion criterion than the MMPI-2 manual requires, and so no additional profiles were excluded.

### **2.2.2 ESTIMATION OF SAMPLE SIZE**

In order to maximize sample size, all available data where the MMPI-2 was used to assess pre-trial forensic patients was collected. Sample size proved difficult to estimate prior to actually going through the records, but conversations with various past and present senior psychiatric personnel led to an estimation of between 80 and 150 patients.

### **2.2.3 SITE**

Sterkfontein Psychiatric Hospital is a psychiatric and forensic hospital in Krugersdorp, southwest of Gauteng. It has forensic inpatient, forensic observation, psychiatric inpatient and psychiatric outpatient facilities. It was deemed to be an appropriate hospital as it processes a large number of forensic observation cases each month, and uses the MMPI-2 as an assessment tool with some of these cases.

### **2.2.4 ETHICAL CONSIDERATIONS**

In order to get permission to access the file records of pre-trial forensic patients, it had to be ascertained that there were no ethical breaches. Permission for the study had to therefore be granted by the Rhodes University Psychology Department Ethics committee, Sterkfontein Hospital ethics committee and the Gauteng Committee for Research on Human Subjects (see *appendix 18*). Due to the retrospective nature of this study (without any actual contact with any of the patients) the only major ethical issue was confidentiality, as clearly there could be negative repercussions if information in forensic files on individual patients was somehow disseminated to the public. In order to alleviate this concern, it was decided that the names of patients, or other information that would readily identify individual patients, would never leave the hospital.

## **2.3 DATA COLLECTION**

Data was collected over three days at Sterkfontein Hospital via the following method: Firstly, all psychological file records of observation cases in the above time period were scanned, and the file numbers and relevant clinical, criminal and demographic data of patients were obtained whenever the MMPI-2 was used as part of the assessment. The MMPI-2 raw data forms were copied and then labeled according to a numbering system. Secondly, the forensic psychiatric reports of those file numbers that used the MMPI-2 were scanned, in order to acquire information on the final psychiatric assessment of the mental status and assessed criminal responsibility of the patient. It was acknowledged that it would be unviable to fly a second researcher up to Gauteng to collect data in order to estimate an inter-rater reliability. Therefore, data was catalogued verbatim, with minimal interpretation, from the file records. Unfortunately, many of the demographic, clinical and criminal variables of interest were not available in the files, and were discontinued. Data was categorized back in Cape Town.

### **2.3.1 POSSIBLE BIAS OF COLLECTED DATA**

The MMPI-2 was not utilized in the assessment of many of the forensic patients, and exclusion of these profiles does eschew the data. It is hypothesized that the forensic pre-trial sample

selected would contain a higher number of individuals who were more intelligent, white, English, older, better educated, and not flagrantly psychotic at the time of completion of the MMPI-2.

### **2.3.2 EXCLUSION OF INVALID MMPI-2 PROFILES**

A total of 94 forensic observation patients had been assessed with the aid of the MMPI-2. Validity criteria chosen had high cut-off scores due to the high number of non-malingers that are often excluded in forensic cases by standard validity scores, due to the similarity between profiles of malingers and forensic pre-trial observation patients (Butcher et al., 1995, in Osberg & Poland, 2001). Profiles in this sample were excluded if they failed to meet validity criteria laid out in Butcher and colleagues (1995), in Osberg and Poland (2001): In the following order, profiles were excluded if number of omitted responses > 30 (3 excluded), VRIN (T-score) over 80 (4 excluded), TRIN raw score of 13 or more or 5 or less (1 excluded), K (T) > 80 (0 excluded), or F (raw score) > 30 (7 excluded). This meant that 15 profiles (16%) were excluded, leaving 79 valid profiles. Only 16% of profiles were excluded here, and ideally these should now be assessed for malingering using the Structured Interview of Reported Symptoms (SIRS; Rogers, Bagby & Dickens 1992; in Lewis et al., 2002). The SIRS takes a full hour of one-on-one structured interview, and thus the MMPI-2 would have proved useful here as a screening instrument.

### **2.3.3 NORMALITY OF DISTRIBUTION OF UNIFORM T-SCORES**

Data appeared to be normally distributed, although it appears that this assumption is no longer regarded as important (Howell, 1997).

### **2.3.4 NUMBER OF VARIABLES USED IN THE ANALYSIS**

Because of the relatively small sample size, it was necessary to be extremely selective in the variables to be analyzed. A major drawback of comparing multiple variables with small sample sizes is the risk of Type I error (Howell, 1997). It is recommended (Cohen & Cohen, 1983) that for each variable that is analyzed there should be a minimum of 5 cases. The alternative is to use the Bonferroni coefficient, where you divide your proposed alpha limit by the number of comparisons you are making. However, with many variables this tends to lower unrealistically the chance of rejecting the null hypothesis, and thus tends to promulgate Type II error: accepting the null hypothesis when in fact it should be rejected (Howell, 1997). The former method was followed, and 79 valid cases / 5 meant that there could be no more than 16 MMPI-2, demographic, clinical and criminal variables used in the regression analysis.

### **2.3.5 RATIONALE FOR COLLAPSING RESPONSIBLE (CR) AND DIMINISHED CRIMINAL RESPONSIBILITY (DCR) FOR THE ANALYSIS.**

The group of Diminished Criminal Responsibility (DCR) patients proved to be somewhat problematic, as they did not fit well into either the Criminally Responsible (CR) or Not Criminally Responsible (NCR) groups. However, they appeared to have means that were largely closer to the CR group, though with their own unique characteristics. It was deemed useful to collapse this group into that of the CR group for the main analyses, creating a Total Criminally Responsible group (CR/DCR). However, a second discriminant analysis was performed with the three groups as separate, in order to understand if the demographic, clinical, criminal and particularly MMPI-2 variables would prove useful in discriminating between these groups.

### **2.3.6 RATIONALE FOR SELECTION OF VARIABLES FOR DISCRIMINANT ANALYSIS**

Demographic, clinical and criminal variables were decided upon after weighing up various considerations.

- (1) Variables were excluded where there wasn't available data for the majority of cases.
- (2) The literature was consulted to establish which variables in the past had discriminated between responsible and not responsible patients.
- (3) A preliminary correlation matrix of the independent variables (particularly the MMPI-2 scales) discovered high correlations between certain variables, which would result in a certain level of redundancy. Since many of the scales share item content there is often a large overlap between scales, leading to problems with collinearity (Cohen & Cohen, 1983). The major focus when selecting scales here was to attempt to use scales that not only have tended to be correlated with criminal responsibility, but those that have a unique contribution. An effort was made to choose scales that would not mask this predictive contribution of an individual scale (collinearity), and also potentially help to unpack any suppression of unique contribution (Cohen & Cohen, 1983). Collinearity becomes a problem in a discriminant analysis when many independent variables measure a similar phenomenon, which is correlated with the dependent variable, as this may limit the significance of the effect of any one independent variable on the dependent, as its contribution is not unique (Cohen & Cohen, 1983). Thus, for example, it was decided not to use both Sc and Pa, as they have a large correlation with each other. Suppression explains why some variables may have direct effects that are larger even than their zero order (unpartialled) effects (Cohen & Cohen, 1983). Normally zero order effects tend to be larger, but sometimes the relationship between causal variables hides the real relationship with the dependent variables. Cohen & Cohen

(1983) tells us that the inclusion of the suppressor in the regression equation removes (suppresses) the unwanted variance in  $X_1$  and enhances the relationship between  $X_1$  and  $Y$  by means of  $B_{y1.2}$ . Whenever one of these correlations has a value that is less than the product of the other 2, then the relationship is what is called suppression (Cohen & Cohen, 1983). Ostensibly, what this means is that if two independent variables have positive (unpartialled) correlations with the dependent variable but a strong negative correlation with each other, then part of the real relationship between each independent variable and the dependent variable is being obscured. When this occurs to the extent that the partialled coefficients are larger than their unpartialled coefficients, then this is called suppression. Cohen & Cohen (1983) feels that the partialled coefficients can be seen to more accurately reflect the causal effects, with the zero-order effects being misleadingly small because of the negative relationship between the variables. Therefore, an effort was made to include variables with strong negative relationships to other variables (such as Es) that might ‘unsuppress’ other variables.

### **2.3.7 VARIABLES USED IN DISCRIMINANT ANALYSIS**

The seven demographic and clinical variables used in the discriminant analysis were employment status, psychiatric diagnosis, race, psychiatric history, substance abuse/dependence, psychosis and age (See *appendix 19* for coding and description of variables). The nine MMPI-2 scales used were Pd, Mf, Pa, Ma, Si, Es, MAC-R, BIZ and ASP.

## **CHAPTER 3: RESULTS**

### **3.1 THE PRE-TRIAL FORENSIC SAMPLE**

#### **3.1.1 DEMOGRAPHIC, CLINICAL AND CRIMINAL VARIABLES**

The sample consisted of 22 (23.40%) pre-trial forensic patients who the evaluated by the multidisciplinary psychiatric team as not responsible, 13 (13.83%) who were found to have diminished responsibility, and 59 (62.77%) who were found criminally responsible.

The average age of those pleading lack of responsibility was 29.82 years (see *table 10* to *table 16*, and *appendix 23*). The majority was white (68.82%), male (78.72%), with 52.69% being in a significant relationship, 30% having a previous psychiatric history, and 56.18% being employed. Over half (51.06%) were not given a formal diagnosis, with 25.53% receiving a non-psychotic diagnosis, and 23.40% a psychotic diagnosis. 57.49% were not found to suffer from substance abuse or dependence, with 19.15% abusing moderately severe substances and 23.40% abusing extremely severe substances. 23.91% of the subjects had some form of active psychosis at the time of the observation. The instant offense committed could be broken down as 22.34% primarily property or arson, 10.64% moderate violence, 10.64% sexual offenses, 11.70% severe violence, 31.91% a single murder, and 12.77% multiple murders or murder together with other crimes of violence. This means that a high percentage of the sample of pre-trial forensic defendants (56.38%) had committed extremely violent offenses (Grievous bodily harm, attempted murder, or murder). The overwhelming majority of IQ assessments reported that the sample were in the average range. The education breakdown was that 23.75% had achieved a Grade 8 or 9, 31.25% had a Grade 10 or 11, 26.25% had finished school, and 18.75% had some degree of tertiary education, which, as expected, rates as an educated population sample. 12.77% of the population had been diagnosed as having Antisocial Personality Disorder. 85% of the sample were assessed as fit to stand trial.

### **3.1.2 MMPI-2 VARIABLES**

#### **3.1.2.1 AVERAGE SCALE SCORES**

MMPI-2 scale scores (see *table 17*, and *appendix 22* for all scales), and all analyses involving the MMPI-2 that followed, were only conducted on valid profiles. MMPI-2 average profiles that were elevated above 65T or that are below 40T are shown below in *table 6*.

**Table 6: MMPI-2 profiles that were significantly high or low**

| Validity and Clinical Scales |       |       | Content scales |       |       | Supplementary scales |       |       |
|------------------------------|-------|-------|----------------|-------|-------|----------------------|-------|-------|
| Scale                        | Mean  | S.D.* | Scale          | Mean  | S.D.* | Scale                | Mean  | S.D.* |
| F                            | 77.54 | 22.70 | ANX            | 69.47 | 12.40 | A                    | 66.56 | 13.18 |
| Fb                           | 85.08 | 25.55 | FRS            | 67.51 | 15.84 | Mt                   | 67.35 | 12.31 |
| D                            | 72.68 | 16.62 | DEP            | 72.34 | 15.90 | PK                   | 74.86 | 16.20 |
| Pd                           | 69.48 | 15.37 | HEA            | 67.00 | 13.40 | PS                   | 73.32 | 15.63 |
| Pa                           | 77.52 | 20.72 | BIZ            | 71.00 | 17.62 | MDS                  | 68.43 | 13.44 |
| Pt                           | 71.39 | 16.68 | WRK            | 65.67 | 12.80 | Es**                 | 34.95 | 8.55  |
| Sc                           | 76.16 | 16.84 | TRT            | 66.32 | 14.68 | Do**                 | 37.01 | 8.39  |
|                              |       |       |                |       |       | GM**                 | 36.65 | 9.91  |

\*S.D. = standard deviation

\*\* mean below 40T (all other scales reported because mean above 65T)

#### **3.1.2.2 FREQUENCY OF SCALE SCORES**

Means can sometimes mask elevation, so frequency of scores above 65 or below 40 was examined for the traditional validity and clinical scales (see *appendix 21*). It was found that scales with the majority of scores elevated included F (72.15%), Hs (58.23%), D (67.09%), Pd (53.16%), Pa (70.89%), Pt (67.09%), and Sc (81.01%), with K having a high percentage under 40T (45.57%). Hs was disguised when looking at mean scores, due to its polarization, with a full 8.86% also having scores under 40T.

#### **3.1.2.3 HIGH POINT PAIRS**

The distinction has been made already between well-defined high point pairs and high point pairs not necessarily well-defined (see *page 33* or *appendix 12* for an understanding of code-types), and equally between those that are elevated and those that are recorded irrespective of elevation. To maximize inclusiveness (excluding high points that are not clearly defined) and comparability (it is much easier to compare when they are all 2-point pairs, rather than also having 1- and 3-point pairs), the table utilized here (see *table 7*) is one showing high point pairs that are not necessarily well defined or elevated. The most common high point by far is Pa (36.08%), followed by D (12.66%), Pd (11.39%), Sc (10.13%) and Ma (10.13%). The least common high point is Si (1.27%), followed by Hs/Hy/Pt (4.43%), and Mf (5.06%). The most common high point pairs are 6-8/8-6 (18.35%), 6-4/4-6 (12.65%), 6-2/2-6 (5.70%), 8-4/4-8 (5.70%).

**Table 7: High Point Pairs Of Pre-Trial Forensic Sample  
(Not Necessarily Well-Defined Or Elevated)**

| High Point                          |       |      |       |      |       |      |       |      |       |       |      |       |
|-------------------------------------|-------|------|-------|------|-------|------|-------|------|-------|-------|------|-------|
| 2 <sup>nd</sup><br>Highest<br>Point |       | Hs   | D     | Hy   | Pd    | Mf   | Pa    | Pt   | Sc    | Ma    | Si   | Total |
|                                     | Hs    | #    | .42   | 1.90 | 1.27  | 1.27 | 0     | 0    | 0     | 0     | 0    | 4.85  |
|                                     | D     | 2.53 | #     | 1.27 | 1.90  | 0    | 4.43  | 1.27 | .63   | 0     | 0    | 12.03 |
|                                     | Hy    | .63  | .42   | #    | 0     | 1.27 | 0     | 0    | 0     | 0     | 0    | 2.32  |
|                                     | Pd    | 0    | 1.05  | 1.27 | #     | 1.27 | 9.49  | 0    | 3.16  | 3.80  | 0    | 20.04 |
|                                     | Mf    | 1.27 | 0     | 0    | 1.27  | #    | .63   | 0    | 0     | 0     | 0    | 3.16  |
|                                     | Pa    | 0    | 1.27  | 0    | 3.16  | 0    | #     | 1.90 | 1.90  | 3.16  | 0    | 11.39 |
|                                     | Pt    | 0    | 3.80  | 0    | 1.27  | 0    | 2.53  | #    | 2.53  | 0     | 0    | 10.13 |
|                                     | Sc    | 0    | 3.16  | 0    | 2.53  | 1.27 | 16.46 | 0    | #     | 2.53  | 0    | 25.95 |
|                                     | Ma    | 0    | 0     | 0    | 0     | 0    | 1.27  | 1.27 | 1.90  | #     | 1.27 | 5.70  |
|                                     | Si    | 0    | 2.53  | 0    | 0     | 0    | 1.27  | 0    | 0     | .63   | #    | 4.43  |
|                                     | Total | 4.43 | 12.66 | 4.43 | 11.39 | 5.06 | 36.08 | 4.43 | 10.13 | 10.13 | 1.27 | 100   |

Columns reflect highest clinical scale and rows reflect second highest clinical scale.

Figures are in percentages.

To make replication of this study by future research more accurate, a copy of well- defined high point pairs has been included in *appendix 20*. This will be more resilient to error, and indeed it was found that only 6 profiles (7.59%) were unclassifiable.

### **3.1.2.4 CLASSIFICATION INTO MEGARGEY TYPOLOGIES**

Accuracy of fit was ascertained for the profiles by selecting the typology for which the profile was finally assigned to. As can be seen in the *appendix 17*, only 2 profiles had MMPI-2 clinical scale scores that fit a profile with below a medium level of accuracy, and 3 profiles could not be assigned at all. These 3 were removed from further analysis. 54.435 (43) profiles could be assigned by primary rules alone (they only fit one typology), 22.78% (18) profiles were assigned via secondary rules (they were multiply classified, but with different levels of accuracy of classification), and 18.99% (15) profiles were assigned using tie-break rules (they were multiply classified to the same level of accuracy), and 3.40% (3) profiles could not be classified. 58% of profiles were classified as How, and 15% as Charlie (see *table 8*). It was felt that it would be too inaccurate to perform a full statistical analyses of variance on these groups, as some of the cells would contain too few cases. Nevertheless, it does not appear that responsibility groupings vary significantly with these two (better populated) typological groups (see *table 9*).

**Table 8: Classification of Typologies by Gender**

|               | Abl<br>e | Bak<br>er | Charli<br>e | Delt<br>a | Eas<br>y | Foxtro<br>t | Georg<br>e | How   | Item | Jup<br>iter | UC   | Total |
|---------------|----------|-----------|-------------|-----------|----------|-------------|------------|-------|------|-------------|------|-------|
| Males         | 1        | 1         | 11          | 2         | 1        | 3           | 2          | 36    | 1    | 1           | 1    | 60    |
| Females       | 0        | 1         | 1           | 0         | 0        | 0           | 1          | 10    | 4    | 0           | 2    | 19    |
| Total         | 1        | 2         | 12          | 2         | 1        | 3           | 3          | 46    | 5    | 1           | 3    | 79    |
| % of<br>Total | 1.27     | 2.53      | 15.19       | 2.53      | 1.27     | 3.80        | 3.80       | 58.23 | 6.33 | 1.27        | 3.80 | 100   |

UC = Unclassifiable

Names of profile typologies are from Megargee et al. (2001)

**Table 9: Classification of Typologies by Responsibility**

|              | Able | Baker | Charlie | Delta | Easy | Foxrot | George | How | Item | Jupiter | UC | Total |
|--------------|------|-------|---------|-------|------|--------|--------|-----|------|---------|----|-------|
| <b>NCR</b>   | 0    | 0     | 3       | 0     | 0    | 0      | 2      | 12  | 1    | 1       | 1  | 20    |
| <b>DCR</b>   | 0    | 0     | 1       | 1     | 1    | 0      | 0      | 6   | 1    | 0       | 0  | 10    |
| <b>CR</b>    | 1    | 2     | 8       | 1     | 0    | 3      | 1      | 28  | 3    | 0       | 2  | 49    |
| <b>Total</b> | 1    | 2     | 12      | 2     | 1    | 3      | 3      | 46  | 5    | 1       | 3  | 79    |

UC = Unclassifiable

Names of profile typologies are from Megargee et al. (2001)

### **3.2 ANALYSIS OF VARIANCE IN RESPONSIBILITY**

Analysis of variance of responsibility categories across various demographic, clinical, criminal and MMPI-2 variables was conducted via one-way ANOVA's (Cohen & Cohen, 1983). An analysis of CR/DCR v NCR groupings showed that race, gender and age were not significant. Therefore, it was not necessary to analyze covariance, and standard ANOVA's could be conducted. These were conducted for the 16 variables that were selected for regression analysis, as well as several other variables.<sup>1, 2, 3</sup>

#### **3.2.1 ANALYSIS OF VARIABLES SELECTED A PRIORI**

This included an analysis of the 16 variables that were later used in the discriminant analyses (see *table 10* to *table 16*). In places, secondary analyses comparing different groupings of responsibility have been conducted. It must be emphasized that running any secondary analysis like this increases the chance of a type 1 error, and thus any of these secondary findings would have to be viewed with caution, and would need to be replicated before weight could be attached to them.

##### **3.2.1.1 DEMOGRAPHIC AND CLINICAL VARIABLES**

###### **3.2.1.1.1 AGE**

Responsibility groupings (see *table 10*) did not vary significantly in terms of mean age ( $df=(1,90)$ ,  $F=.048$ ,  $p=.826$ ).

<sup>1</sup> All MMPI-2 scores reported are for valid profiles.

<sup>2</sup> All effect sizes, degrees of freedom, significance test scores and p values are for a collapsed criminally responsible (CR) and diminished criminal responsibility (DCR) group, (denoted as CR/DCR), versus a not criminally responsible (NCR) grouping.

<sup>3</sup> All effect sizes in this section are either Phi coefficients (symbolized by Phi) or point-biserial coefficients (symbolized by R). The Chi-squared used is Pearson's chi-squared.

**Table 10: Variance of Responsibility groupings with Age**

| AGE | CR (58) |      | DCR (13) |      | CR+DCR(71) |      | NCR (21) |      | Total (92) |      |
|-----|---------|------|----------|------|------------|------|----------|------|------------|------|
|     | X       | SD   | X        | SD   | X          | SD   | X        | SD   | X          | SD   |
|     | 28.82   | 8.71 | 33.69    | 7.63 | 29.70      | 8.69 | 30.19    | 9.42 | 29.82      | 8.81 |

$R=.023$ ,  $R^2=.001$ ,  $df=(1,90)$ ,  $F=.048$ ,  $p=.826$

### **3.2.1.1.2 RACE**

Race was divided into white and other than white. Responsibility groupings (see *table 11*) did not vary significantly in terms of Race ( $\Phi = .156$ ,  $df=1$ ,  $\chi^2 = 2.270$ ,  $p=.132$ ). However, there was a significant difference ( $df=1$ ,  $p<.02$ ) between DCR and a combined NCR and CR group.

**Table 11: Variance of Responsibility groupings with Race**

| RACE         | CR (58) |       | DCR (13) |       | CR+DCR(71) |       | NCR (22) |       | Total (93) |       |
|--------------|---------|-------|----------|-------|------------|-------|----------|-------|------------|-------|
|              | No.     | %     | No.      | %     | No.        | %     | No.      | %     | No.        | %     |
| White        | 41      | 70.69 | 5        | 38.46 | 46         | 64.79 | 18       | 81.82 | 64         | 68.82 |
| Not White    | 17      | 29.31 | 8        | 61.54 | 25         | 35.21 | 4        | 18.18 | 29         | 31.18 |
| Missing data | 1       |       | 0        |       | 1          |       |          |       | 1          |       |

$\Phi = .156$ ,  $df=1$ ,  $\chi^2 = 2.270$ ,  $p=.132$

### **3.2.1.1.3 PSYCHIATRIC HISTORY**

Responsibility groupings (see *table 12*) did vary significantly in terms of psychiatric history ( $\Phi=.327$ ,  $df= 1$ ,  $\chi^2=9.610$ ,  $p=.0019$ ).

**Table 12: Variance of Responsibility groupings with Psychiatric History**

| PSYCHIATRIC HISTORY    | CR (57) |       | DCR (12) |    | CR+DCR(69) |       | NCR (21) |       | Total (90) |    |
|------------------------|---------|-------|----------|----|------------|-------|----------|-------|------------|----|
|                        | No.     | %     | No.      | %  | No.        | %     | No.      | %     | No.        | %  |
| No psychiatric History | 45      | 78.95 | 9        | 75 | 54         | 78.26 | 9        | 42.86 | 63         | 70 |
| Psychiatric History    | 12      | 21.05 | 3        | 25 | 15         | 21.74 | 12       | 57.14 | 27         | 30 |
| Missing data           | 2       |       | 1        |    | 3          |       | 1        |       | 4          |    |

$\Phi=.327$ ,  $df= 1$ ,  $\chi^2=9.610$ ,  $p=.0019$

### **3.2.1.1.4 EMPLOYMENT STATUS**

Responsibility groupings (see *table 13*) did not vary significantly in terms of employment status ( $\Phi=.071$ ,  $df=1$ ,  $\chi^2=.443$ ,  $p=.501$ ).

**Table 13: Variance of Responsibility groupings with Employment Status**

| Employment Status | CR (56) |       | DCR (11) |       | CR+DCR(67) |       | NCR (22) |    | Total (89) |       |
|-------------------|---------|-------|----------|-------|------------|-------|----------|----|------------|-------|
|                   | No.     | %     | No.      | %     | No.        | %     | No.      | %  | No.        | %     |
| Unemployed        | 26      | 46.43 | 2        | 18.18 | 28         | 41.79 | 11       | 50 | 39         | 43.82 |
| Employed          | 30      | 52.57 | 9        | 81.82 | 39         | 58.21 | 11       | 50 | 50         | 56.18 |
| Missing data      | 3       |       | 2        |       |            |       | 0        |    | 5          |       |

$\Phi=.071$ ,  $df=1$ ,  $\chi^2=.443$ ,  $p=.501$

### 3.2.1.1.5 DIAGNOSIS

Diagnosis was categorised in 3 groupings; no given diagnosis, a major but non-psychotic diagnosis (including adjustment disorder, major depressive disorder, impulse control disorder, polysubstance abuse, cocaine dependence, bipolar I (depressive phase), mixed personality disorder, obsessive-compulsive disorder, bipolar II, antisocial personality disorder, and alcohol dependence) and a psychotic diagnosis (including paranoid schizophrenia, delusional disorder, undifferentiated schizophrenia, bipolar I (manic phase), cocaine induced psychosis, and residual schizophrenia with prominent negative symptoms ). Responsibility groupings (see *table 14*) did vary significantly in terms of diagnosis for CR/DCR versus NCR ( $\Phi=.824$ ,  $df=2$ ,  $\chi^2=63.858$ ,  $p<.00005$ ), as well as for CR versus DCR ( $\Phi=.699$ ,  $df=2$ ,  $\chi^2=35.134$ ,  $p<.00005$ ) and DCR versus NCR ( $\Phi=.699$ ,  $df=2$ ,  $\chi^2=16.764$ ,  $p<.00023$ ).

**Table 14: Variance of Responsibility groupings with Diagnosis**

| DIAGNOSIS                | CR (59) |       | DCR(13) |       | CR+DCR(72) |       | NCR (22) |       | Total (94) |       |
|--------------------------|---------|-------|---------|-------|------------|-------|----------|-------|------------|-------|
|                          | No.     | %     | No.     | %     | No.        | %     | No.      | %     | No.        | %     |
| No diagnosis             | 47      | 79.66 | 0       | 0     | 47         | 65.28 | 1        | 4.55  | 48         | 51.06 |
| Diagnosis, not psychotic | 12      | 20.34 | 10      | 76.92 | 22         | 30.56 | 2        | 9.09  | 24         | 25.53 |
| Psychotic Diagnosis      | 0       | 0     | 3       | 23.08 | 3          | 4.17  | 19       | 86.36 | 22         | 23.40 |

$\Phi=.824$ ,  $df=2$ ,  $\chi^2=63.858$ ,  $p<.00005$

### 3.2.1.1.6 PSYCHOSIS

Psychosis was an evaluation made as to the current mental state of the patient (which would obviously be particularly relevant to fitness to stand trial). Responsibility groupings (see *table 15*) did vary significantly in terms of evaluated psychosis for CR/DCR versus NCR ( $\Phi=.761$ ,  $df=1$ ,  $\chi^2=53.285$ ,  $p<.00005$ ), and also for CR versus DCR ( $\Phi=.401$ ,  $df=1$ ,  $\chi^2=11.258$ ,  $p=.0008$ ) and DCR versus NCR ( $\Phi=.535$ ,  $df=1$ ,  $\chi^2=9.429$ ,  $p=.0021$ ).

**Table 15: Variance of Responsibility groupings with Psychosis**

| PSYCHOSIS    | CR(59) |       | DCR (11) |       | CR+DCR(70) |       | NCR (22) |       | Total (92) |       |
|--------------|--------|-------|----------|-------|------------|-------|----------|-------|------------|-------|
|              | No.    | %     | No.      | %     | No.        | %     | No.      | %     | No.        | %     |
| No Psychosis | 58     | 98.31 | 8        | 72.73 | 66         | 94.29 | 4        | 18.18 | 70         | 76.09 |
| Psychosis    | 1      | 1.69  | 3        | 27.27 | 4          | 5.71  | 18       | 81.82 | 22         | 23.91 |
| Missing Data | 0      |       | 2        |       | 2          |       | 0        |       | 2          |       |

$\Phi=.761$ ,  $df=1$ ,  $\chi^2=53.285$ ,  $p<.00005$

### 3.2.1.1.7 SUBSTANCE ABUSE

Substance abuse was divided up into groupings of no evaluated substance abuse or dependence, abuse or dependence of moderately severe substances (such as alcohol, cannabis, Prozac and bioplus), and abuse or dependence on extremely severe substances (such as cocaine, heroin,

mandrax, crack). Responsibility groupings (see *table 16*) did not vary significantly in terms of evaluated psychosis for CR/DCR versus NCR ( $\Phi=.121$ ,  $df=2$ ,  $\chi^2=1.367$ ,  $p=.505$ ).

**Table 16: Variance of Responsibility groupings with Substance Abuse:**

| SUBSTANCE ABUSE              | CR (59) |       | DCR (13) |       | CR+DCR(72) |       | NCR (22) |       | Total (94) |       |
|------------------------------|---------|-------|----------|-------|------------|-------|----------|-------|------------|-------|
|                              | No.     | %     | No.      | %     | No.        | %     | No.      | %     | No.        | %     |
| No substance abuse           | 30      | 50.85 | 9        | 69.23 | 39         | 54.17 | 15       | 68.18 | 54         | 57.45 |
| Abuse of moderate substances | 12      | 20.34 | 3        | 23.08 | 15         | 20.83 | 3        | 13.64 | 18         | 19.15 |
| Abuse of severe substances   | 17      | 28.81 | 1        | 7.69  | 18         | 25.00 | 4        | 18.18 | 22         | 23.40 |

$\Phi=.121$ ,  $df=2$ ,  $\chi^2=1.367$ ,  $p=.505$

### 3.2.1.2 MMPI-2 SCALES

Analysis (see *table 17* below, and *appendix 21* for all MMPI-2 scales) showed that scales with significant variance were Pd ( $R=.235$ ,  $df=1$ ,  $F= 4.491$ ,  $p= .037$ ) and Pa ( $R= .239$ ,  $df=1$ ,  $F=4.674$ ,  $p= .034$ ). The Mf scale did not obtain significance, and yet approached significance ( $R= .193$ ,  $df=1$ ,  $F= 2.995$ ,  $p= .088$ ). None of the other scales had or approached significant variance with responsibility: Pt ( $R=.063$ ,  $df=1$ ,  $F=.303$ ,  $p=.583$ ), Sc ( $R=.030$ ,  $df=1$ ,  $F=.069$ ,  $p=.794$ ), Ma ( $R=.090$ ,  $df=1$ ,  $F=.635$ ,  $p=.428$ ), Si ( $R=.158$ ,  $df=1$ ,  $F= 1.977$ ,  $p= .164$ ), Es ( $R=.071$ ,  $df=1$ ,  $F=.445$ ,  $p= .506$ ), MAC-R ( $R= .166$ ,  $df=1$ ,  $F= 2.171$ ,  $p= .145$ ), BIZ ( $R=.016$ ,  $df=1$ ,  $F= .021$ ,  $p=.886$ ), and ASP ( $R= .077$ ,  $df=1$ ,  $F=.465$ ,  $p= .498$ ).

**Table 17: Variance of Responsibility groupings with MMPI-2 scales**

|              | CR    |       | DCR   |       | CR + DCR |       | NCR   |       | TOTAL |       | SIGNIFICANCE |                |       |      |
|--------------|-------|-------|-------|-------|----------|-------|-------|-------|-------|-------|--------------|----------------|-------|------|
|              | X     | S.D.  | X     | S.D.  | X        | S.D.  | X     | S.D.  | X     | S.D.  | R            | R <sup>2</sup> | F     | p    |
| <b>L</b>     | 59.33 | 10.98 | 61.80 | 11.66 | 59.75    | 11.04 | 62.43 | 12.22 | 60.47 | 11.35 | .105         | .011           | .852  | .359 |
| <b>F</b>     | 76.54 | 22.87 | 82.10 | 32.27 | 77.50    | 24.50 | 77.67 | 17.30 | 77.54 | 22.70 | .003         | .000           | .001  | .977 |
| <b>K</b>     | 44.04 | 11.99 | 44.00 | 9.66  | 44.03    | 11.54 | 43.67 | 11.06 | 43.94 | 11.35 | .014         | .000           | .016  | .900 |
| <b>Hs</b>    | 65.75 | 17.08 | 66.30 | 13.41 | 65.84    | 16.40 | 61.33 | 12.74 | 64.65 | 15.57 | .129         | .017           | 1.300 | .258 |
| <b>D</b>     | 72.19 | 15.41 | 78.00 | 16.55 | 73.19    | 15.62 | 71.29 | 19.49 | 72.68 | 16.62 | .221         | .049           | 4.744 | .032 |
| <b>Hy</b>    | 64.17 | 16.20 | 66.60 | 15.26 | 64.59    | 15.94 | 57.48 | 12.18 | 62.70 | 15.29 | .207         | .043           | 3.439 | .068 |
| <b>Pd</b>    | 71.54 | 15.01 | 72.10 | 15.37 | 71.64    | 14.94 | 63.52 | 15.31 | 69.48 | 15.37 | .235         | .055           | 4.491 | .037 |
| <b>Mf</b>    | 56.40 | 9.810 | 59.40 | 10.76 | 56.91    | 9.95  | 52.62 | 9.14  | 55.77 | 9.87  | .193         | .037           | 2.995 | .088 |
| <b>Pa</b>    | 79.79 | 20.77 | 83.80 | 25.62 | 80.48    | 21.49 | 69.33 | 16.22 | 77.52 | 20.72 | .239         | .057           | 4.674 | .034 |
| <b>Pt</b>    | 71.10 | 15.76 | 76.40 | 21.08 | 72.02    | 16.70 | 69.67 | 16.91 | 71.39 | 16.68 | .063         | .004           | .303  | .583 |
| <b>Sc</b>    | 76.17 | 15.87 | 77.90 | 26.93 | 76.47    | 17.96 | 75.33 | 13.62 | 76.16 | 16.84 | .030         | .001           | .069  | .794 |
| <b>Ma</b>    | 60.02 | 11.19 | 51.80 | 10.55 | 58.60    | 11.43 | 61.29 | 17.33 | 59.32 | 13.18 | .090         | .008           | .635  | .428 |
| <b>Si</b>    | 60.13 | 12.92 | 66.00 | 13.09 | 61.14    | 13.03 | 65.76 | 12.58 | 62.37 | 12.99 | .158         | .025           | 1.977 | .164 |
| <b>Es</b>    | 35.85 | 9.58  | 35.50 | 8.97  | 35.79    | 9.41  | 32.62 | 5.02  | 34.95 | 8.55  | .071         | .005           | .445  | .506 |
| <b>MAC-R</b> | 59.15 | 11.23 | 57.50 | 12.23 | 58.86    | 11.31 | 54.19 | 15.23 | 57.62 | 12.54 | .166         | .027           | 2.171 | .145 |
| <b>BIZ</b>   | 70.35 | 18.24 | 75.10 | 21.51 | 71.17    | 18.73 | 70.52 | 14.54 | 71.00 | 17.62 | .016         | .000           | .021  | .886 |
| <b>ASP</b>   | 55.58 | 11.36 | 49.00 | 8.47  | 54.45    | 11.13 | 56.38 | 11.13 | 54.96 | 11.10 | .077         | .006           | .465  | .498 |

X=Mean, S.D. = Standard Deviation

R = Point Biserial correlation; R<sup>2</sup> = Variance; F = F Ratio; p = p-value

A few qualitative secondary observations are noteworthy, but it was felt that statistical analysis would be inappropriate due to risk of type I error. Firstly, for the Si scale, the DCR and NCR groups were similar in magnitude and elevated above the CR group. Secondly, for the Ma scale, the CR and NCR groups had very similar values, which were much higher than the DCR group. Thirdly, for the ASP scale, the CR and NCR groups were of a similar magnitude and much higher than DCR.

### **3.2.2 ANALYSIS OF SELECTIVE POST HOC VARIABLES**

Post hoc ANOVA's were conducted on the other demographic, clinical and criminal variables (see *table 19* and *appendix 23*), as well as the other MMPI-2 clinical scales (see *appendix 22*), that were not used in the discriminant analysis. This increases the risk of Type I error for these analyses, and as the number of analyses being conducted increases beyond acceptable levels, it becomes probable that one or more results will appear significant when in fact this is due to random error alone. Because of this, all results for post hoc variables must be treated with a healthy skepticism. Post hoc analyses were carried out to give direction to further research in this field in SA, and because the MMPI-2 clinical scales provide the backbone of current clinical assessment in SA. Risk of error can be reduced (but not removed) by including (see the discussion section) *a priori* expectations as to what the results would show.

#### **3.2.2.1 FITNESS TO STAND TRIAL**

Responsibility groupings (see *table 18*) did not vary significantly in terms of fitness to stand trial ( $\Phi=.757$ ,  $df=1$ ,  $\chi^2=53.836$ ,  $p<.00005$ ). Everyone who was evaluated as being criminally responsible or having diminished criminal responsibility was also found to be fit to stand trial.

**Table 18: Variance of Responsibility groupings with Fitness to Stand Trial**

| FITNESS<br>FOR TRIAL | CR (59) |     | DCR (13) |     | CR+DCR(72) |     | NCR (22) |       | Total (94) |       |
|----------------------|---------|-----|----------|-----|------------|-----|----------|-------|------------|-------|
|                      | No.     | %   | No.      | %   | No.        | %   | No.      | %     | No.        | %     |
| Unfit                | 0       | 0   | 0        | 0   | 0          | 0   | 14       | 63.64 | 14         | 14.89 |
| Fit                  | 59      | 100 | 13       | 100 | 72         | 100 | 8        | 36.36 | 80         | 85.11 |
| Missing              | 0       | 0   | 0        | 0   | 0          | 0   | 0        | 0     | 0          | 0     |
| Total                | 59      | 100 | 13       | 100 | 72         | 100 | 22       | 100   | 94         | 100   |

$\Phi=.757$ ,  $df=1$ ,  $\chi^2=53.836$ ,  $p<.00005$

#### **3.2.2.2 DEMOGRAPHIC, CLINICAL AND CRIMINAL VARIABLES**

Results tables for demographic, clinical and criminal variables not to be used in the discriminant analyses, are included in *appendix 23*, just a summary of the variance of responsibility groupings with these variables included here in *table 19*.

**Table 19: Variance of Responsibility groupings with selected variables**

| Variable        | Phi  | Df | $\chi^2$ | P    |
|-----------------|------|----|----------|------|
| Gender          | .042 | 1  | .164     | .685 |
| Instant Offense | .136 | 5  | 1.742    | .884 |
| Marital status  | .081 | 1  | .605     | .437 |
| IQ              | .028 | 1  | .067     | .796 |
| Education       | .272 | 3  | 5.920    | .116 |
| Antisocial P.D. | .136 | 1  | 1.743    | .187 |

Phi = Phi correlation, df = degrees of freedom,  $\chi^2$  = Pearson chi-squared, P = p value

### **3.2.2.2 MMPI-2 SCALES**

The D scale had accounted for a significant amount of variance in responsibility ( $R = .221$ ,  $df=1$ ,  $F = 4.744$ ,  $p = .032$ ), with the NCR group scoring considerably higher (see *table 17*). Scale Hy was not significant, and yet approached significance ( $R = .207$ ,  $df=1$ ,  $F = 3.439$ ,  $p = .068$ ), with the NCR group scoring appreciably lower. Analysis of variance of the other clinical scales showed no significant variance with responsibility for scales Hs ( $R = .129$ ,  $df=1$ ,  $F = 1.300$ ,  $p = .258$ ), Pt ( $R = .063$ ,  $df=1$ ,  $F = .303$ ,  $p = .583$ ) and Sc ( $R = .030$ ,  $df=1$ ,  $F = .069$ ,  $p = .794$ ).

### **3.2.3 HIGH POINT PAIRS**

The most common CR high point pairs (see *page 33* and *appendix 12* for information on high point pairs, and *appendix 24* for results discussed here) are 6-8/8-6 (20.83%), 4-6/6-4 (16.67%), 2-6/6-2 (6.25%), and 4-9/9-4 (6.25%). DCR, in general, was too small a category to be able to really utilize, except for the strong frequency of 6-8/8-6 (35%). It seems quite useful to again collapse CR/DCR, giving us most common high point pairs of 6-8/8-6 (23.28%), 6-4/4-6 (17.24%), 2-6/6-2 (6.03%), and 4-9/9-4 (5.17%). NCR has high points of 2-7/7-2 (14.29%), and 2-8/8-2 (9.52%), 2-10/10-2 (9.52%), 4-8/8-4 (9.52%), 6-7/7-6 (9.52%), 6-9/9-6 (9.52%), 8-9/9-8 (9.52%), with low frequencies of both 6-8/8-6 (4.76%) and 6-4/4-6 (0%). ANOVA's were conducted just on 3 high point pairs, comparing CR/DCR with NCR. It was found that 2 were significant (6-4/4-6:  $\Phi = .229$ ,  $df=1$ ,  $\chi^2 = 4.145$ ,  $p = .042$ ; 2-7/7-2:  $\Phi = .253$ ,  $df=1$ ,  $\chi^2 = 5.061$ ,  $p = .024$ ) and the third almost significant (6-8/8-6:  $\Phi = .214$ ,  $df=1$ ,  $\chi^2 = 3.657$ ,  $p = .056$ ). This has clinical utility, as in this sample it means that over 40% of the CR/DCR profiles were covered by just 2 high point pairs, which accounted for less than 5 % of NCR profiles.

### **3.3 DISCRIMINATING BETWEEN RESPONSIBLE AND NOT RESPONSIBLE PATIENTS**

All discriminant analyses followed the same method (see method section for selection of variables). Initially, a forward stepwise regression analysis was conducted with variables to be used in the particular analysis. Variables were entered in order, from the variable with the highest lambda value, through to the lowest. The F to enter used was 1.00, and the tolerance was set at 1.00. Variables remaining in the model were then subjected to a standard discriminant analysis, with the results reported below.

#### **3.3.1 DISCRIMINANT ANALYSIS USING DEMOGRAPHIC, CLINICAL AND MMPI-2 VARIABLES**

When demographic, clinical and MMPI-2 variables were combined in a discriminant analysis, six variables (diagnosis, psychosis, race, substance abuse, Pa and Es) all had significant unique discriminative power. Overall, this discriminative equation was highly significant ( $F=45.732$ ,  $df=(6,70)$ ,  $p<.0005$ ). It was able to correctly predict group membership in 96.103% of cases where proportion was taken into account, and 94.805% of cases where it was not, and is thus adding about 3% to correct predictive ability. In the current sample, this clinically means that the error rate is halved from 6 cases to 3 cases.

**Table 20: Discriminant Analysis of Responsibility using Demographic, Clinical and MMPI-2 Variables**

| N=77            | Wilk's Lambda | F-remove(1,70) | p-level |
|-----------------|---------------|----------------|---------|
| Psychosis       | .308          | 36.05          | 0.0000  |
| Diagnosis       | .303          | 34.37          | 0.0000  |
| Pa              | .227          | 8.19           | 0.0055  |
| Es              | .218          | 5.14           | 0.0265  |
| Race            | .220          | 5.93           | 0.0174  |
| Substance Abuse | .216          | 4.53           | 0.0367  |

Wilk's Lambda = .203,  $F(6, 70) = 45.732$ ,  $p < 0.0005$

| Group           | Percentage correct | Predicted NCR | Predicted CR/DCR |
|-----------------|--------------------|---------------|------------------|
| Observed NCR    | 95.238             | 20            | 1                |
| Observed CR/DCR | 96.429             | 2             | 54               |
| Total           | 96.103             | 22            | 55               |

#### **3.3.2 DISCRIMINANT ANALYSIS USING ONLY DEMOGRAPHIC AND CLINICAL VARIABLES**

Out of the 7 demographic and clinical scales used, 4 were significant in the discriminant analysis (psychosis, diagnosis, race and substance abuse). The overall discriminant function was highly significant ( $df = (4,86)$ ,  $F = 54,646$ ,  $p < 0.0005$ ). When this discriminant equation was used to discriminate in the current sample, it managed an overall correct prediction rate of 93.41%, where proportion was considered in the matrix, and 91.209% where it was not. (Clinically, a mixture of these assumptions is probably accurate, in that every case is judged separately, and yet

the forensic psychiatrist is indeed aware of the percentages of cases that are found to be NCR v CR, and thus has a healthy suspiciousness when dealing with each case).

**Table 21: Discriminant Analysis Of Responsibility Using Only Demographic And Clinical Variables**

| N=91            | Wilk's Lambda | F-remove(1,86) | p-level |
|-----------------|---------------|----------------|---------|
| Psychosis       | .391          | 33.063         | .0000   |
| Diagnosis       | .380          | 29.686         | .0000   |
| Race            | .315          | 9.889          | .0023   |
| Substance Abuse | .302          | 5.892          | .0173   |

Wilk's Lambda = .282, F (4, 86) = 54.646, p < 0.0005

| Group           | Percentage correct | Predicted NCR | Predicted CR/DCR |
|-----------------|--------------------|---------------|------------------|
| Observed NCR    | 90.91              | 20            | 2                |
| Observed CR/DCR | 94.20              | 4             | 65               |
| Total           | 93.41              | 24            | 67               |

### **3.3.3 DISCRIMINANT ANALYSIS USING ONLY MMPI-2 VARIABLES**

When MMPI-2 variables were used alone in a discriminant analysis it was found that 4 scales (Pa, Es, MAC-R, and Mf) had significant contributions to the discriminant function, whereas BIZ was just not significant (F=.318, df=1, p= .0802), but appeared to add somewhat to overall predictive power (df= (5,73), F = 6.474, p < 0.0005), which was able to correctly predict 82.3% of cases. (For other CR/DCR versus NCR analyses see *appendix 26 & 27*).

**Table 22: Discriminant Analysis Of Responsibility Using Only MMPI-2 Variables**

| N=79  | Wilk's Lambda | F-remove(1,73) | p-level |
|-------|---------------|----------------|---------|
| Pa    | .858          | 17.415         | .0001   |
| Es    | .806          | 11.895         | .0009   |
| MAC-R | .769          | 7.997          | .0060   |
| Mf    | .740          | 5.012          | .0282   |
| BIZ   | .722          | 3.148          | .0802*  |

Wilk's Lambda = .693, F (5,73) = 6.474, p < 0.0005

| Group           | Percentage correct | Predicted NCR | Predicted CR/DCR |
|-----------------|--------------------|---------------|------------------|
| Observed NCR    | 61.905             | 13            | 8                |
| Observed CR/DCR | 89.655             | 6             | 52               |
| Total           | 82.278             | 19            | 60               |

### **3.4 CROSS VALIDATION STUDY OF DISCRIMINANT ANALYSIS CLASSIFICATION SUCCESS RATES**

A cross validation study (see *table 20*) reclassified even numbered cases into responsibility groupings, using an equation obtained from a discriminant analysis of odd numbered cases using all 16 demographic, clinical and MMPI-2 variables.

**Table 23 Reclassification into Responsibility groups of even numbered cases using discriminant function derived from all 16 variables from even numbered cases**

| Group           | Percentage correct | Predicted NCR | Predicted CR/DCR |
|-----------------|--------------------|---------------|------------------|
| Observed NCR    | 91.67              | 11            | 1                |
| Observed CR/DCR | 95.83              | 1             | 23               |
| Total           | 94.44              | 12            | 24               |

### **3.5 SECONDARY DISCRIMINANT ANALYSIS USING 3 LEVELS OF RESPONSIBILITY**

Demographic and clinical variables that each had a significant unique contribution in discriminating between the CR, DCR and NCR (see *appendix 18*) groups were psychosis, diagnosis, race and substance abuse. They produced a significant discriminant equation ( $F=33.442$ ,  $df=8$ ,  $p<.0005$ ), which correctly predicted group membership in 86.81% of cases where proportion was taken into account, and 84.62% of cases where it was not. The equation struggled to predict group membership to DCR (45.45% correct). In contrast, the MMPI-2 scales that had discriminant ability were Pa, Es, and ASP. Si, Mf, MAC-R and BIZ were just not significant, but appeared to contribute to the overall discriminant equation ( $F=2.913$ ,  $df=14$ ,  $p<.0007$ ), as well as to its predictive power, where 70.89% of cases were correctly identified. The discriminant equation struggled to correctly predict group membership for DCR, only correctly classifying 20% of cases, which is below chance. Where demographic, clinical and MMPI-2 variables were combined in a discriminant analysis, 7 variables had a unique significant contribution (diagnosis, psychosis, substance abuse, race, Pa, Es, and Ma). The discriminant function was highly significant ( $F=19.758$ ,  $df=14$ ,  $p<.0005$ ). This function could correctly discriminate in 94.81% of cases where proportion was considered, and 90.91% of cases where it was not. Again, DCR cases proved difficult to classify correctly (they were correctly classified in 75% of cases). The DCR group has not been adequately addressed in the MMPI-2 literature, and research here would be invaluable. The MMPI-2 has clearly added significant discriminative power to the discriminant function involving three levels of responsibility (CR, DCR, NCR), where it has helped to correctly classify an additional 8% of cases (where proportion is considered). This translates into a decrease in incorrect classification by 2/3, from 12 to 4, in the sample.

## **CHAPTER 4: DISCUSSION**

### **4.1 CHARACTERISTICS OF WHOLE PRE-TRIAL FORENSIC SAMPLE**

#### **4.1.1 DEMOGRAPHIC, CLINICAL AND CRIMINAL VARIABLES**

##### **4.1.1.1 FITNESS FOR TRIAL**

Eighty of the pre-trial sample were assessed as fit to stand trial (see *table 18*), and only fourteen were found to be unfit to stand trial. Due to the fact that all fourteen were also NCR, the NCR group can be seen to contain all offenders who were found to be either not responsible at the time of the offense and/or currently unfit to stand trial.

##### **4.1.1.2 AGE**

The average age of those pleading lack of responsibility was 29.82 years, which is substantially older than the average SA or USA criminal population (Jeffrey et al., 1988; Pasewark et al., 1979) and similar in age (Jeffrey et al., 1988; Quinsey et al., 1980; Rogers & McKee, 1995) or even slightly younger (Pasewark et al., 1979) to USA forensic pre-trial patients (see *table 10*).

##### **4.1.1.3 RACE**

The majority was white (see *table 11*) and spoke English or Afrikaans, which was expected as a certain proficiency in English is necessary for the effective administration of the MMPI-2, which naturally biased the Sterkfontein sample in this respect. However, international research has tended to find a significantly higher percentage of both Caucasian and more educated individuals in forensic pre-trial than in regular criminal populations (Pasewark et al., 1979). This may, in SA, have to do with this class of individuals having better access to legal resources who might make them aware of the insanity defense, or better personal knowledge about the insanity defense. One cannot rule out possible bias in the medical and legal infrastructure though, in the process from arrest to entering a plea of not responsible.

##### **4.1.1.4 GENDER**

Almost seventy nine percent were male (see *appendix 23*), which implies a significantly higher percentage of females plead insanity than are convicted of offenses, as the percentage of female prisoners in SA prisons is less than 2.5% of the total prison population (Ministry of Correctional Services, 2002). This is in line with international research (Pasewark et al., 1979; Rogers & McKee, 1995). However, it is likely that a higher proportionate percentage of women will always

plead NCR, as they compose such a small percentage of criminals in total. Because of this, factors such as insanity will contribute to a higher percentage of cases (in that insanity percentages do not tend to differ between men and women).

#### **4.1.1.5 SIGNIFICANT RELATIONSHIP**

The majority was in a marriage without voluntary separation (see *appendix 23*), or other significant relationship. Relationship status did not vary with responsibility, which the supports the findings of the majority of the literature (Pasewark et al., 1987; Janofsky et al., 1989), which led to the exclusion of this factor from the discriminant analysis.

#### **4.1.1.6 PREVIOUS PSYCHIATRIC HISTORY**

Only 30% had previous psychiatric history (see *table 12*), which is high for the general public, or criminal, but not all that high for a sample pleading insanity at the time of the offense, and is similar to previous research (Pasewark et al., 1979). This would lead one to assume that that the success rate of the plea for this sample would be somewhat below half, as the plea of non-pathological criminal insanity is rare.

#### **4.1.1.7 EMPLOYMENT STATUS**

Fifty six percent were employed in the period leading up to the instant offence (see *table 13*), with employment being seen as mostly continuous for at least 6 months. Lack of formal employment is common both to individuals suffering from major mental illness and from personality disorder, as well as individuals making a living from crime.

#### **4.1.1.8 SUBSTANCE ABUSE**

Fifty seven percent of the pre-trial sample was not found to suffer from substance abuse or dependence (see *table 16*), with nineteen percent abusing moderate substances and twenty three percent abusing more severe substances. This figure is high for the general population, but not for forensic populations (Pasewark et al., 1987; Callahan et al., 1991), where there is a link both between crime and substance abuse and between substance abuse and psychopathology. These findings have been duplicated with SA criminal studies, where Parry, Louw and Plüddemann (2001) found that over 50% of arrestees tested positive for drugs, and the National Injury Mortality Surveillance System (NIMSS) (2000, in Crime Information Analysis Centre (SAPS), 2001) found that over 60% of murders in 2000 were alcohol related.

#### **4.1.1.9 DIAGNOSIS**

Just over half the pretrial sample were not given a formal diagnosis (see *table 14*), with twenty six percent receiving a non-psychotic but major diagnosis, and twenty three percent a psychotic diagnosis. There was a high correlation between diagnosis and previous psychiatric history. In fact though, the percentage of the sample achieving formal diagnoses was slightly low compared to USA (Pasewark, et al., 1987; Callahan et al., 1991; Wright et al., 1997), which might be due to lower pathology in SA pretrial forensic samples, or a greater reluctance of psychiatric personnel to attach formal diagnoses to these patients. This might relate to a greater general reluctance to attach labels to patients, or perhaps to diagnose patients with major or psychotic diagnoses where the assessment is that the patient is in fact responsible for their crime.

#### **4.1.1.10 PSYCHOSIS**

Twenty four percent of the subjects were assessed to have some form of active psychosis at the time of the observation (see *table 15*), which clearly concurs with the levels of psychotic diagnoses. There are differences between a diagnosis that a patient is suffering from a major psychotic illness, and an assessment that a patient is currently psychotic. Firstly, a patient can suffer from a major psychotic illness such as schizophrenia, and yet not be actively psychotic at the time of the observation (due to medication, therapy, remission etc.) Equally, it is possible to suffer a short-term psychotic breakdown that does not necessarily denote the presence of a pervasive psychotic illness (e.g. cocaine induced psychosis, or a short term collapse of ego strength under extreme situational stress, such as sexual abuse).

#### **4.1.1.11 INSTANT OFFENCE**

The instant offense committed could be broken down as twenty two percent property or arson, eleven percent moderate violence, eleven percent sexual offenses, twelve percent severe violence, thirty two percent single murder, and thirteen percent multiple murders or murder together with other crimes of violence (see *appendix 23*). This means that a high percentage of the sample of pre-trial forensic defendants (56%) had committed extremely violent offenses (Grievous bodily harm, attempted murder, or murder). This figure is disproportionately high to the sample of prisoners in general, but normal for pre-trial forensic patients (Pasewark, et al., 1987; Callahan et al., 1991; Shah et al., 1994; Janofsky et al., 1989; Hodgkins, 1983; Rogers & McKee, 1995). It may be that psychologically disturbed individuals are susceptible to committing particularly violent crimes. This may be due to a lack of ability to control themselves, or a temporary lack of regard for the extreme consequences of committing extreme, violent

crime. Equally though, it may be that when an offender is up on severe charges then there is more reason to pursue all possible means to seek exculpation from a heavy prison sentence.

#### **4.1.1.12 INTELLIGENCE QUOTIENT**

The overwhelming majority of IQ assessments reported that the sample were in the average range (see *appendix 23*). This was to be expected, for several reasons. Firstly, the primary purpose in many of the observation cases was to determine if the individual had an IQ that enabled them to be assessed with conventional tests or to stand trial, or the cognitive tests were to examine for the possibility of organic damage, which can contribute to acting out behavior or psychosis. Thus, the focus was less on that the IQ actually was, and more on whether it was of at least a certain minimum level.

#### **4.1.1.13 HIGHEST LEVEL OF EDUCATION**

The highest level of education was, as expected, well above that for the nation in general (see *appendix 23*), and criminals in particular, due to the exclusion criteria for the use of the MMPI-2, which state that the minimal level of education is grade 8. Equally, the requirement of a functional literacy in English, may have further increased this educational level, as non English speakers from more rural areas may have had to have a particularly high level of education (above grade 8) in order to have been functionally literate in English.

#### **4.1.1.14 DIAGNOSIS OF ANTISOCIAL PERSONALITY DISORDER**

Thirteen of the sample was diagnosed as having Antisocial Personality Disorder (see *appendix 23*), which is similar to findings for other pre-trial forensic samples (Pasewark, et al., 1987; Callahan et al., 1991; Wright et al., 1997). This figure is low for offenders in general, which is to be expected in a sample where many of the offenders are assessed as not responsible for their actions. Since many of the pretrial sample are not responsible guilty, or completely responsible for their actions, this would lower the chance of them having antisocial personality disorder. This hypothesis gains weight from the fact that a high percentage of this sample had committed instant offenses involving extreme violence, rather than property offenses for economic gain.

Psychopaths, and particularly the more intelligent ones, tend to commit property offenses (Nussbaum et al., 1996), where they gain economically, are less likely to be caught and if caught convicted, and even if convicted they are likely to spend only short periods of time in jail. Thus, they weigh up the risk of their crimes. Many psychopaths extensive juvenile records of violent and sexual offenses; however, they tend to limit these offenses to situations where they are unlikely to get caught (e.g. animal abuse or assault within the marriage).

#### **4.1.2 MMPI-2 VARIABLES**

Overall, the scaled scores (For the following subsections below, see *table 17*, and *appendix 21* for all MMPI-2 scales) were of a similar magnitude to the other studies of pre-trial forensic patients that used the MMPI-2 (Wright et al.1997; Shea & McKee, 1996; Shea et al., 1996; Rogers & McKee, 1995), and differed in some respects from the older studies using the original MMPI (Cooke, 1969, Kurleycheck & Jordan, 1980).

##### **4.1.2.1 “FAKING GOOD”**

The L and K scales were not elevated, with mean T-scores of 60 and 44 respectively, that were similar (within about 5 T-score points) to previous MMPI-2 PTFP samples (Wright et al.1997; Shea & McKee, 1996; Shea et al., 1996; Rogers & McKee, 1995), with the L scale around 10 T-score points higher than the revised MMPI scale scores of Cooke (1969) and Kurleycheck & Jordan (1980), and the K scale over 5 T-score points lower than Kurleycheck & Jordan (1980). This duplicated the findings of Shea & McKee (1996), and perhaps caution needs to be exercised when following a general rule of subtracting 5 T-score points from each MMPI scale, when considering population subgroups. However, a trend must also be acknowledged in the MMPI/MMPI-2 literature to use less stringent, and thus higher cut-off scores with this sample, which would increase the average score of the validity scales of valid profiles. A pre-trial forensic would be more likely to attempt to appear more moral (L scale) than to appear less psychopathological (K scale), and this, combined with a growing understanding of the insanity plea, might explain the growing elevation of L scale scores over K scale scores in PTFP samples.

##### **4.1.2.2 “FAKING BAD”**

The “faking bad indices” were both still elevated, and of similar magnitude ( $F=78T$ ,  $Fb=85$ ), even after invalid profiles had been removed. This compared with F scale scores for the other MMPI-2 PTFP research (Wright et al.1997; Shea & McKee, 1996; Shea et al., 1996; Rogers & McKee, 1995), as well as two of the three MMPI PTFP studies (Holcomb et al., 1984, Kurleycheck & Jordan, 1980), although scores were higher than those in the oldest of the studies carried out by Cooke (1969). High scores would be expected on the F scale for several reasons. Firstly, the F scale was designed to pick up malingering, which is unlikely to be completely eradicated by high cut-off scores (Lewis et al, 2002). Levels of malingering in pre-trial forensic samples are high and appear to vary from around 20 – 45 % (Lewis et al., 2002; Wasyliv et al., 1988). Secondly, high F scale scores are common for profiles of pre-trial forensic patients in

general (Grillo et al., 1994; Roman & Gerbing, 1989) even once potential malingerers have been removed from the data set (Lees-Haley, 1992, Wright et al., 1997), with possible reasons ranging from acute psychosis, substance withdrawal, to increased psychological stress through confrontation with the justice system (Roman & Gerbing, 1989).

#### **4.1.2.3 RANDOM RESPONDING**

Neither the VRIN or TRIN scales were elevated, showing that the sample on average did not have unusually high rates of random responding. There was no research to compare this to, but this was expected as Sterkfontein Hospitals screening process to identify patients capable of completing the MMPI-2 would have biased the sample towards offenders who were more intelligent, better educated, and not flagrantly psychotic.

#### **4.1.2.4 HYPOCHONDRIASIS SCALE**

The Hs (Hypochondriasis) scale averaged just less than 65, without any significant variance in scale scores based on responsibility. This was similar magnitude to the scores obtained by most previous research (Wright et al. 1997; Shea & McKee, 1996; Shea et al., 1996; Rogers & McKee, 1995; Kurleycheck & Jordan, 1980; Holcomb et al., 1984), with the exception of Cooke (1969) who reported lower scores. Although the average score was a shade under 65, the majority of scores (58%) were over 65 (see *appendix 21*). This scale endorses item content that includes vague and nonspecific neurotic complaints about bodily functioning (Greene, 1991). This elevation was also present in the HEA (health concerns) scale and ANX (anxiety scale), to which it has correlations of .89 and .50 respectively in international normative data (Butcher et al., 1990). This reasserts the preoccupation of pre-trial forensic populations with somatic concerns, diffuse anxiety and a denial of good health. In psychodynamic theory this would be conceptualised in terms of some kind of repression of (untenable) unconscious conflicts, which then manifests in a (less anxiety provoking) physical form.

#### **4.1.2.5 DEPRESSION SCALE**

The D (depression) scale was also elevated (73T), which was substantially higher than most (Wright et al. 1997; Shea & McKee, 1996; Shea et al., 1996; Cooke, 1969, Holcomb et al., 1984), though not all (Rogers & McKee, 1995; Kurleycheck & Jordan, 1980) previous research. However, in previous research the D scale has still tended to be almost always elevated. Certainly, D scale items mostly reflect symptomatic depression, which is a general measure of exogenous depression including poor morale, lack of hope in the future, general apathy, physical symptoms that include sleep disturbance and gastrointestinal complaints, and excessive

sensitivity (Greene, 1991). Because of this, depression in pre-trial patients is almost certainly influenced by the situational factor of incarceration and observation. The substantially higher D scale score in this SA sample may partly then be situational, in that the legal process and /or the forensic observation process may be perceived in a more negative light. Alternatively, SA pre-trial forensic samples may be more prone to depression, which may reflect a more general, intrusive pattern amongst certain sectors of SA population. Certainly, Swanepoel's (1977) MMPI research with prisoners also showed that the Hs, Hy and D clinical scales were elevated. These excessively high scores are concerning, and may be indicative of high levels of clinical depression, rather than just situational distress. The elevated scores on scales such as Pt, HEA, ANX, FRS, PK, PS and MDS, that the D scale shares item content with, may help create an understanding of this depression. Clearly, these depressed PTFP's are a group who have excessive anxiety, somatic complaints, specific fears and concerns, marital problems, and other symptoms that are generally associated with posttraumatic stress such as emotional distress, sleep disturbance, guilt, intrusive thoughts, and fear of loss of control. Very similar scores were obtained for the (perhaps easier to fake) DEP depression content scale, which has more obvious item content. However, a full item analysis of obvious versus subtle scores could not be conducted due to the absence of raw data for some profiles (only scaled scores were available for a minority of profiles).

Previous SA research may provide a potential hypothesis as to why South African MMPI-2 D scale scores are so much higher than their international counterparts. McAinsh (1993) found that South Africans scored significantly higher than USA on the A (Wiggins anxiety) scale, and lower on Es (ego strength) scale, and this research was found to be in line with many previous SA studies. It appears likely that McAinsh's (1993) conclusion that these differences were attributed to different social norms and perceptions rather than a greater level of pathology, is accurate. A hypothesis here is that SA populations (and pre-trial forensic populations in specific) do not have less endogenous ego resources than overseas 1<sup>st</sup> world populations, but rather that (situational) political, economic and social factors place far more strain on our coping mechanisms, resulting in objective ratings of a population struggling relatively more to cope (Es scale). This manifests in higher scores for the Sterkfontein sample as compared to Shea et al. (1996) on SOD (social discomfort), TPA (Type A personality) and ANX (anxiety content scale). A few isolated scores may be due to random error due to small sample size, but here is a trend whereby none of the scales acknowledging physiological or psychological anxiety or depression are higher for MMPI-2 research on USA samples, and a few (mentioned above) are a fair bit higher for SA samples.

The higher score on Type A may indicate a repression of emotion in an effort to cope with these exogenous situational factors.

#### **4.1.2.6 HYSTERIA SCALE**

The Hy (Hysteria) scale was not quite elevated (63T). These patients thus scored relatively highly on both items reflecting specific somatic complaints and items expressing whether the person considers themselves to be well socialized and adjusted, which are linked in persons with histrionic personality dynamics (Greene, 1991). The lack of elevation of this scale was congruent with previous research (Wright et al. 1997; Shea & McKee, 1996; Shea et al., 1996; Rogers & McKee, 1995; Cooke, 1969, Kurleycheck & Jordan, 1980; Holcomb et al., 1984).

#### **4.1.2.7 PSYCHOPATHIC DEVIATE SCALE**

The Pd (psychopathic deviate) average scale score was elevated (69T) and in line with most other MMPI-2 research using PTFP's (Wright et al. 1997; Shea & McKee, 1996; Shea et al., 1996; Rogers & McKee, 1995; Cooke, 1969, Kurleycheck & Jordan, 1980; Holcomb et al., 1984; Cavanaugh & Wasyliw, 1985; Cook & Sikorski, 1974; Rogers & McKee, 1995), with the exception of Moskowitz, et al. (1999). This describes a sample suffering from general social maladjustment and the absence of strongly pleasurable experiences, including views of family and authority figures, self and social alienation, boredom, denial of social shyness, and assertion of social confidence (Greene, 1991).

This scale had a strong correlation in the normative sample with content and supplementary scales ANX, DEP, ANG, FAM, WRK and TRT (Butcher et al, 1990). In the Sterkfontein sample, ANX, DEP, WRK, TRT were elevated, FAM just not elevated (63T), and the only scale of these with a low average uniform T-score was ANG (55T). Two (not exclusive) hypotheses as to why the ANG scale score is so much lower, are the following: Firstly, many of the subjects are extremely defended (unconsciously) against both the emotional and behavioral expression of anger, which would support the link between some violent crimes and over-controlled hostility (Megargee et al., 1966). Secondly, offenders may be consciously masking their anger, as they may feel emotional and behavioral expression might undermine their chance of being evaluated as NCR. This second factor is likely to make it more difficult to utilize scales measuring aggression and acting-out behavior to discriminate between CR and NCR.

#### **4.1.2.8 MASCULINITY-FEMININITY SCALE**

The Mf (male-female) scale had an overall score of 56, which was about average for quite a diverse range of scores in international PTFP research, ranging from about 48T to 65T (Wright et

al.1997; Shea & McKee, 1996; Shea et al., 1996; Rogers & McKee, 1995; Cooke, 1969, Kurleycheck & Jordan, 1980; Holcomb et al., 1984). The Mf scale has extremely heterogeneous items including personal and emotional sensitivity, sexual identification, altruism, feminine occupation identification, and denial of masculine occupations, which were originally used to discriminate between soldiers and male homosexual inverters (Greene, 1991). Responses to these items are scored as 'deviant' if they are deemed to reflect femininity in men and masculinity in women (Greene, 1991). Caution must be advised here, as it is easy to pathologise what is in fact a healthy flexibility. Men with low scores thus present themselves as extremely masculine, with stereotypically masculine preferences in work, hobbies and other activities, while high scorers do not present themselves in this stereotypical way, and often have more aesthetic and artistic interests (Graham, 1991). It appears there is some degree of variance in this scale with level of education, with higher scorers having more tertiary education, often in the social sciences (Graham, 1991). It was thus assumed that the Sterkfontein sample would score fairly average, due to highest levels of education that were generally neither extremely high or extremely low, and this was indeed reflected in the scores.

#### **4.1.2.9 PARANOIA SCALE**

The Sterkfontein sample MMPI-2 profile for the Pa scale was significantly elevated (78T), which was in line with research on other pre-trial forensic patients (Wright et al.1997; Shea & McKee, 1996; Shea et al., 1996; Rogers & McKee, 1995; Cooke, 1969, Kurleycheck & Jordan, 1980; Holcomb et al., 1984), with the exception of Cooke (1969) where the scores were lower. Paranoia item content identifies interpersonal sensitivity, moral self-righteousness, and suspiciousness, with the content of some items clearly being psychotic in nature (Greene, 1991), and so this scale would clearly be expected to be elevated in a sample of pre-trial forensic patients.

#### **4.1.2.10 PSYCHAESTHENIA SCALE**

The Pt (psychasthenia) scale score was also elevated for the pre-trial sample (X = 76T). Other research (Wright et al.1997; Shea & McKee, 1996; Shea et al., 1996; Rogers & McKee, 1995; Kurleycheck & Jordan, 1980; Holcomb et al., 1984), with the exception again of Cooke (1969) had also found this scale to be elevated. However, the level of elevation in the Sterkfontein study was, with the exception of Kurleycheck and Jordan (1980), generally 5 to 8 T score points higher than in previous research. This scale includes items designed to assess inability to resist specific actions or thoughts regardless of their nature or consequences (now called Obsessive-Compulsive disorder), as well as other item content including abnormal fears, self-criticism, difficulties in

concentration, and guilt feelings (Greene, 1991). Thus, item content ranges from neurotic anxiety orientated symptoms to symptoms that are extremely paranoid and possibly psychotic in nature.

#### **4.1.2.11 SCHIZOPHRENIA SCALE**

The Sc (schizophrenia) scale mean score was also elevated ( $X = 76T$ ), which was expected as the item content here mainly relates to psychosis and general maladjustment. An elevated Sc scale is indeed congruent with previous research (Wright et al. 1997; Shea & McKee, 1996; Shea et al., 1996; Rogers & McKee, 1995; Holcomb et al., 1984), with the exception of being lower than scores obtained by Kurleycheck and Jordan (1980) and higher than the scores obtained by Cooke (1969). This scale includes diverse content areas such as bizarre thought processes, peculiar perceptions, poor family relationships, social alienation, impulse control problems, difficulties concentrating, lack of deep interests, sexual difficulties, and issues around self-worth and self-identity (Greene, 1991).

#### **4.1.2.12 HYPOMANIA SCALE**

The Ma (hypomania) scale was not elevated (59T), and was of a similar magnitude to other research on pre-trial forensic patients (Wright et al. 1997; Shea & McKee, 1996; Shea et al., 1996; Rogers & McKee, 1995; Cooke, 1969, Kurleycheck & Jordan, 1980; Holcomb et al., 1984). Item content includes ego inflation, excitability, psychomotor acceleration, imperturbability, and amorality (Greene, 1991), with these traits thus only being measured as average by the MMPI-2.

#### **4.1.2.13 SOCIAL INTROVERSION SCALE**

The Si scale was not elevated overall (62T), although it was similar to or slightly higher than previous research where it tended to have a mean in the upper 50's (Wright et al. 1997; Shea & McKee, 1996; Shea et al., 1996; Rogers & McKee, 1995; Cooke, 1969, Kurleycheck & Jordan, 1980; Holcomb et al., 1984). Content areas tend to assess the introversion-extroversion dimension, with high scores reflecting interpersonal deficits such as shyness, self-consciousness, social avoidance, and alienation from self or others (Greene, 1991).

#### **4.1.2.14 MACANDREWS ALCOHOLISM SCALE**

The MAC-R supplementary scale averaged 58T, which was lower than had been expected. This scale identifies the possibility of alcohol or other substance abuse, as well as more general patterns of psychological maladjustment and acting out behavior, including antisociality (Megargee et al, 2001; Graham, 2000; Greene, 1991), and was selected for discriminant analysis for these reasons. The Sterkfontein sample averaged 6 points lower than what Boscan et al.

(2002) found with a sample of prison inmates, perhaps due to the fact that there was less acting out behaviour and substance abuse in this sample, or possibly because there was more motivation in an observation sample to mask these factors.

#### **4.1.2.15 BIZARRE MENTATION SCALE**

The BIZ content scale was elevated (71T) for the pre-trial forensic sample as a whole, which had been anticipated on rational grounds, with a similar average also being found by Shea et al. (1996). BIZ scale items reflect psychotic thought processes, such as auditory, visual and olfactory hallucinations, and paranoid ideation (Butcher et al., 1990), which would be the kind of items endorsed by offenders genuinely NCR, or who were trying to be found NCR for their actions.

#### **4.1.2.16 ANTISOCIAL PRACTISES SCALE**

The ASP scale was not elevated (55T), which was congruent with previous research (Shea et al., 1996). Lack of elevation in a scale one might intuitively expect to be elevated in this population, is probably due to a combination of two key reasons. Firstly, some of this group are probably not accustomed to acting out violently or illegally, and were genuinely not in control of their mental state at the time of their offenses. Secondly, there is an obvious motivation both for CR and NCR individuals to mask any antisocial practices to attempt to maximize their chances of being found NCR.

#### **4.1.2.17 EGO STRENGTH SCALE**

The Es scale score was extremely low (35T) for the pre-trial sample as a whole. Despite the absence of literature on this scale for pre-trial forensic samples, an extremely low score had been predicted. The Es scale item content reflects ego strength, or psychological resources of the client, and tends to imply a lack of serious characterological maladjustment (Greene, 1991; Graham, 2000). It was hypothesized that many forensic patients would have particularly low scores either due to serious disintegration of the psyche, generally reflected in psychosis, or due to serious deformities in the personality structure (e.g. Antisocial personality disorder). It would be interesting to have other research on PTFP's to compare this score to, as it might well be that this Es score is significantly lower than in USA samples (see discussion on D scale).

#### **4.1.3 TYPOLOGIES OF CRIMINAL OFFENDERS**

The Megargee Typology was utilized in this study to give an overview of the personality characteristics of this sample, as well as for each case, and to begin to examine its applicability to a SA system. Advantages of classifying criminal offenders into Megargee typologies are:

- (1) They are relatively easy to classify, and only require MMPI-2 clinical scale data.
- (2) They provide an in depth understanding of the demographic, clinical, criminal and personality characteristics of patients for very little expenditure of resources.
- (3) Each typology contains information on the unique treatment needs and follow-up needs of the typology, as well as criminal placement, risk of recidivism or rehospitalization, and issues likely to be faced by prison and therapeutic staff (such as conflict with, or the possibility of being preyed upon by, other patients).

Generally speaking, using Megargee typologies opens up the wealth of international resources on managing and where possible rehabilitating criminals.

As expected, the majority of cases fitted into just two typologies, with 15% being classified as Charlie and 58% classified as How. Due to small sample size, it was not possible to carry out a factor analysis to see if SA criminal populations have the same typological classifications as in USA, with the same attributes, and this should be a task of future research. However, several factors add weight to the possibility that this is so.

- (1) The sample fitted the typologies (based on MMPI-2 clinical scales) extremely well (see *appendix 17*). Only 3.8% of profiles could not be classified, and 2 being classified at a low level, with the rest being classified at either a medium or high level. The cases also tended to only fit into one typology, with 43 fitting only one typology, 18 fitting more than one typology but fitting one at a far more exact level, and only 15 needing to be scrutinized to see which typology they fit better.
- (2) It had been expected based on the literature (Megargee et al., 1969; Megargee et al, 2001; Walters et al., 1986; Hutton et al., 1993) that the majority of the offenders should fit into either Charlie or How, as these are the most disturbed categories of offenders.
- (3) A qualitative overview of the characteristics of Megargee's Charlie and How typologies (see *appendix 8*) showed that these two typologies appear to have very similar demographic, clinical and criminal characteristics, as well as MMPI-2 content scale scores, as those offenders from the Sterkfontein sample who fit into these typologies. Due to small sample size, and the small size of the other eight typologies (that it would be necessary to compare them against), statistical measures were not adopted.

## **4.2 ANALYSIS OF VARIANCE IN RESPONSIBILITY**

Only sixteen variables were selected *a priori* for analysis, and any other analyses introduce an increased risk of error. Nevertheless, general comments are made on analyses of several other variables as well, and all variables will be discussed as a group in order to maintain cohesion. It is important to remember though that this increases the risk of having significant findings that are actually due to random error. Therefore, analyses on additional variables should be interpreted with caution. Again, when there were prior expectations as to what statistical analysis would show, these have been included.

### **4.2.1 ANALYSIS OF FITNESS TO STAND TRIAL**

The correlation between fitness for trial and responsibility was large (.80), and would have been even larger if just comparing the CR and NCR groups. It is thus clearly uncommon to evaluate somebody who is currently psychotic to the point of being unable to stand trial, and come to the conclusion that they were responsible for their actions at the time of the instant offense. Of course, there are cases of psychotic people who commit crimes unrelated to their psychosis, or criminals who only became psychotic after the instant offense (perhaps due to medication relapse, ego decompensation due to the stress of dealing with the legal system etc.), but this would be the exception. In fact though, every offender found to be unfit to stand trial was also found to be NCR, so the NCR sample is actually inclusive of all offenders who are found to be not criminally responsible and/or not fit for trial.

### **4.2.2 ANALYSIS OF DEMOGRAPHIC, CLINICAL AND CRIMINAL VARIABLES**

#### **4.2.2.1 AGE**

Responsibility groupings did not vary significantly with age of NCR vs. CR/DCR (see *table 10*), which differed from some (Steadman et al., 1983; Pasewark, et al., 1987; Callahan et al., 1991), but not all (Janofsky et al., 1989) previous research. This may be largely due to differences in the methodology, as some research analyzed age as a broad categorical variable.

#### **4.2.2.2 RACE**

The greater percentage of whites found to be NCR than CR/DCR was not significant (see *table 11*). This result reflected past research in USA where the majority of studies had shown no significant differences (Steadman et al., 1983; Pasewark, et al., 1987; Steadman et al., 1983; Janofsky et al., 1989), with one study showing a significantly higher proportion of white NCR individuals (Steadman, 1980). This is a positive finding at first glance as it appears to show that

irrelevant factors that sometimes create bias are not being taken into account when decisions of criminal responsibility are actually made. However, a significantly higher percentage of whites plead insanity, and there do not appear to be different rates of insanity amongst different ethnic groups, which leads to a tentative hypothesis that there are embedded ethnic power dynamics in society, that lead to a subtle form of racial prejudice, particularly in the lower levels of legal and medical decision making. It appears superficially that once legal and medical professionals are called upon to weigh up evidence, this bias falls away in place of more rational (empirical) structures. Possibly the level of education to attain professional status, together with these professional skills, may also be seen to have minimized any previous prejudice.

#### **4.2.2.3 GENDER**

Responsibility groupings did not vary significantly with gender (see *appendix 23*). This was expected, although international studies have found both no significant difference (Steadman et al., 1983), as well as a higher percentage of women found to be NCR (Pasewark, et al., 1987; Steadman, 1980; Callahan et al., 1991).

#### **4.2.2.4 PREVIOUS PSYCHIATRIC HISTORY**

Previous research has shown that responsibility tends to vary significantly with a history of major mental illness or hospitalization prior to the index offense (see *table 12*) (Steadman et al., 1983; Pasewark, et al., 1987; Callahan et al., 1991) and this finding was duplicated in this study, showing that weight is attached to past history of psychosis in making forensic evaluations.

#### **4.2.2.5 EMPLOYMENT STATUS**

Responsibility groupings did not vary significantly with employment status (see *table 13*). It had not been considered for the discriminant analysis as a review of the literature (Pasewark et al., 1987; Janofsky et al., 1989) showed it did not tend to vary with responsibility.

#### **4.2.2.6 SUBSTANCE ABUSE**

Although responsibility groupings did not vary significantly with substance abuse (see *table 16*), the DCR group was more similar to the NCR group than the CR group in this regard, with a larger percentage of DCR/NCR not suffering from substance abuse. This supported past research, which suggested either a significant correlation between responsibility and substance abuse (Pasewark et al., 1987), or a large but not quite significant correlation (Janofsky et al., 1989), and this variable was thus included in the discriminant analysis.

#### **4.2.2.7 DIAGNOSIS**

The literature reported a significant variance of responsibility with diagnosis (Steadman et al., 1983; Pasewark et al., 1987; Callahan et al., 1991, Rogers, Seman & Stampely, 1984, Janofsky et al., 1989), and it was thus selected for the following discriminant analysis. Findings in this study were congruent with the literature, showing a significant variance of responsibility with diagnosis (see *table 14*).

#### **4.2.2.8 PSYCHOSIS**

Responsibility groupings also varied significantly with psychosis both in this study (see *table 15*) and in the literature (Steadman et al., 1983; Pasewark et al., 1987; Callahan et al., 1991, Janofsky et al., 1989). It was selected for discriminant analysis. When comparing the three groupings of CR versus DCR versus NCR with both psychosis and diagnosis, the DCR group fell somewhere between NCR and CR. Again the difficulty of this DCR category was emphasized. Ostensibly, psychosis occurs on a continuum, and yet for the sake of evaluation of responsibility we attempt to place it in two dichotomous categories. In many ways the category of DCR is a manifestation of our uneasiness with this dichotomy. At what point does severe (subjective or objective) stress impede our perceptions and cognitions sufficiently as to rate as having “taken control” of us, placing us in a fantasy world where we cannot, psychologically speaking, be seen to have enough control of reality to be able to control our actions? Where is the line between being non-psychotic, but with impeded (diminished) control, or psychotic, but not completely lacking in control? Legally, we come back to the concept of having (a) an appreciation of the consequences of our actions and (b) being able to act in accordance with that appreciation. Either way, a psychotic diagnosis would lead one to believe that the medical personnel are of the opinion that the cognitions and perceptions of the individual are impaired enough that either (a) or (b) is missing, whereas a diagnosis that is not psychotic in nature would normally imply that the person has both (a) and (b), and thus is responsible for the criminal act that they committed.

#### **4.2.2.9 INSTANT OFFENSE**

Unfortunately, it was only possible to recover information from Sterkfontein on instant offense, rather than worst offense ever convicted, which tends to correlate better with responsibility (Callahan et al., 1991). It was hypothesized that because the current offense might often not be reflective of the kind of offenses that the individual was capable of, it would be unlikely to be a good indicator of responsibility, and thus was not selected for discriminant analysis. Indeed, when comparing property and person offenses, as well as a range of offense categories (see

*appendix 23*), responsibility groupings did not vary significantly with instant offense for the Sterkfontein sample

#### **4.2.2.10 INTELLIGENCE QUOTIENT**

Because of the context within which IQ was determined (being used mainly to identify persons with an IQ under 70, or with specific organic damage), it was not selected for discriminant analysis, and future research in SA would do well to analyse its predictive ability (see *appendix 23*).

#### **4.2.2.11 HIGHEST LEVEL OF EDUCATION**

Highest level of education was not selected for the discriminant analysis, as it was felt it would be influenced too much by selection bias of offenders to complete the MMPI-2 (see *appendix 23*).

#### **4.2.2.12 DIAGNOSIS OF ANTISOCIAL PERSONALITY DISORDER**

The CR/DCR group did have higher levels of antisocial personality disorder than the NCR group (see *appendix 23*), and was similar in magnitude to past research (Pasewark et al., 1987). The DCR group was more similar in this respect to the NCR group than the CR group, which contributed to the fact that responsibility groupings CD/DCR versus NCR did not vary significantly with antisocial personality disorder. It may help to explain one of the dimensions along which the multidisciplinary team makes decisions of responsibility, as it would be more likely to be assumed that the under-controlled antisocial individual was acting in character, and thus indeed would be responsible for their actions. Of course no cause-effect can be inferred here, but it does give us insight into the de facto situation.

### **4.2.3 ANALYSIS OF MMPI-2 VARIABLES**

(See *table 17* and *appendix 21*, as well as *appendix 22* for means of all scales)

#### **4.2.3.1 “ FAKING GOOD”**

Responsibility groupings did not vary significantly with the L scale. The CR group did thus not attempt to convey themselves as morally virtuous, which makes rational sense as they would be likely to appear to have less pathology in the process. The K scale averaged 45T, which was roughly comparable to all other research (within approximately 5 T-score points) and there was no significant variance. The low score on K once again implies that PTFP's in general do not attempt to mask their pathology.

#### **4.2.3.2 “FAKING BAD”**

Responsibility groupings did not vary significantly with the F scale. The Fb scale averaged 85T, without any significant variance in terms of responsibility. It thus appears plausible that many of the malingerers (which would be expected to be more frequent in the CR group) were removed from the sample by validity scale cut-off scores. The remaining high F T-scores would appear to support previous research findings (Grillo, Brown, Hilsabeck, Price, 1994; Roman & Gerbing, 1989, Lees-Haley, 1992, Wright et al., 1997) that many high F scale scores in pretrial forensic samples are not connected to malingering, but rather to the psychopathological variables in this group. An alternative plausible hypothesis is that there are indeed a fair number of malingerers not removed by the validity scales, but that (at least those remaining) are distributed evenly amongst the responsibility groups. Overall, the first set of hypotheses appears more likely.

#### **4.2.3.3 RANDOM RESPONDING**

Responsibility groupings did not vary significantly with the VRIN scale, although it approached significance at the  $P < .05$  level. Interestingly enough, the NCR group averaged the highest T-score on this scale, followed by the CR group and then only the DCR group. It makes sense that the NCR group might be more disorganized in general, due to their higher frequency of psychotic individuals, and this would lead them to score higher on the VRIN scale. However, it is less clear why the DCR group scored the lowest (seven T-score points lower than the CR group, and eleven T-score points lower than the NCR group). Possible explanations might include: (1) random error due to small sample size (2) a high level of effort exerted when filling in the MMPI-2, which led to less inconsistent responses. A tentative hypothesis might be that a low score on the VRIN in the DCR group as opposed to the CR group, is correlated with a pervasive sense of trying hard to appease during the observation assessment, which may add evidence that their crimes were out of character, or that they wanted to convince the clinical staff that their crimes were out of character. If a significant stressor was present at the time of the offense, this attempt to appease might have aided their grounds for an evaluation of diminished criminal responsibility. Equally, a higher level of organization at the time of the assessment may have thwarted any grounds for a successful plea of NCR. The TRIN scale is consistent with the VRIN scale, with NCR scoring higher and DCR lower. Clearly more research is indicated here, before these hypotheses can be given weight.

#### **4.2.3.4 HYPOCHONDRIASIS SCALE**

This scale was not used for discriminate analysis as it was expected, based on the literature (Cooke, 1969, Kurleycheck & Jordan, 1980; Rogers & McKee, 1995) that there would not be a significant variance in scores across responsibility categories. Indeed, responsibility groupings did not vary significantly with the Hs scale, creating the assumption that hypochondriasis is a general preoccupation that tends to be shared by all pre-trial forensic patients.

#### **4.2.3.5 DEPRESSION SCALE**

The responsibility groupings of CR/DCR and NCR showed significant variance across the D scale. This finding that the CR/DCR group on average scored significantly higher than the NCR group, was supported by Rogers & McKee (1995) in their research with the MMPI-2, but not by older research using the MMPI (Cooke, 1969, Kurleycheck & Jordan, 1980) where in fact the CR group scored non-significantly lower than the NCR group. The significant variance in scale D scores had not been expected, and thus this scale had not been chosen for discriminant analysis. In fact, a closer analysis of the frequencies of scores (*appendix 21*) reveals that the depression scores are more polarised for the NCR group, with the majority scoring either below 40T or above 65T. (See *section 4.3.3* for hypotheses explaining this pattern of scoring).

#### **4.2.3.6 HYSTERIA SCALE**

The NCR group scored non-significantly lower on the Hy scale, which is a departure from previous research (Cooke, 1969, Kurleycheck & Jordan, 1980; Rogers & McKee, 1995). Some insight might be gained by looking at the research of Rogers and McKee (1995), who found that their 'CR but mentally ill' group scored 6T-score points higher than the NCR group, who scored 5 T-score points higher than the 'CR and not mentally ill group'. Thus, since lower scores on this scale may reflect item content focusing more on a lack of general adjustment as well as a higher level of somatic symptomatology, it may be that any comparison of the NCR and CR groups with this scale may depend on a breakdown of what percentage of the CR group are actually mentally ill. Unfortunately, the Sterkfontein sample was too small to pursue this further. Again, responsibility was not expected to account for a significant variance on the Hy scale, and this scale was not chosen for discriminant analysis.

#### **4.2.3.7 PSYCHOPATHIC DEVIATE SCALE**

There was a significant difference between the NCR and CR/DCR groups ( $p=.037$ ), with the NCR group scoring much lower and having an average profile that was (just) not elevated (64T). The previous 2 studies comparing responsibility with the original MMPI (Cooke, 1969;

Kurleycheck & Jordan, 1980) had not found a significant difference; however this difference was expected on rational grounds, and Pd had thus been selected as a variable for discriminant analysis. The Pd items tend to revolve around social alienation, as well as antisociality, and some of the questions are subtler in nature, unlike the similar content scales such as CYN and ASP and ANG. It was thus felt that it was highly likely that even if the subject was attempting to convey themselves socially in a more positive light, that with a high percentage of subtle items compared to many of the clinical scales (only just more obvious than subtle items (Greene, 1991)), that they would struggle to do so.

Some studies (Holland & Levi, 1988; Walters, 1985) found a correlation between high scores on Pd and both antisociality and offenses against property, and Walters (1985) contends because persons who commit non-person crimes exhibit higher rates of recidivism than person criminals, it is possible that antisocial offenders who commit non-person crimes are particularly deviate in terms of their attitude and behavior. Sadly, in the Sterkfontein sample it was only possible to obtain information on the index offence, and not on overall criminal history. It was thus thought that it would be too unreliable to try to compare the Pd scale (or any other) to offence committed, as instant offence has not proven to be a good indication of overall criminal behaviour. However, Holland & Levi (1988) found that the sensitivity of the MMPI to the subjects total number of law violations is primarily due to the strong correlation between the Pd scale and offences against property, and to some extent against public order (Holland & Levi, 1988). It shows that repetitive participation in non-violent offences, especially against property, shows a propensity for social deviance far more accurately than crimes against persons, due perhaps to their infrequent occurrence and important non-personality determinants. Further research in SA will be necessary to ascertain the applicability of this in a SA context.

#### **4.2.3.8 MASCULINITY-FEMININITY SCALE**

Responsibility groupings varied non-significantly with the Mf scale ( $p = .088$ ) the NCR group scoring lower. This means that the NCR group conformed more to their gender stereotype than did the CR group (with the DCR group in fact conforming the least). Mf was selected *a priori* as a scale for discriminant analysis, despite the prior research (Cooke, 1969, Kurleycheck & Jordan, 1980; Rogers & McKee, 1995) not showing a significant variance in responsibility. This decision was based on the research by Schmalz et al. (1989) that found the Mf scale to be extremely useful in discriminating between psychiatric, forensic inpatient and inmate groups, particularly as it has little common variance with other scales and may be tapping information neglected by other scales. It was hypothesized that the unique item content of this scale would add a dimension

to the discriminant analysis, even if the zero order regression was perhaps not significant (Cohen & Cohen, 1983).

#### **4.2.3.9 PARANOIA SCALE**

There was a significant variance in responsibility groupings based on the Pa scale ( $p=.034$ ). It had been hypothesized that those observation patients who were found NCR would generally be more likely to still score highly on psychotic indices, and thus to score higher on the Pa scale than CR patients. In fact, this was *de facto* the other way round, which was unexpected. There are several plausible hypotheses for the CR/DCR group scoring higher:

- (1) Some research has failed to find a linear or even curvilinear relationship between the Pa scale and suspiciousness (Vestre & Watson, 1972 in Greene, 1991), or has found an inverse correlation (Endicott, Jortner & Abramoff, 1969 in Greene, 1991). The Pa scale has also not been shown to reliably (by itself) separate groups of paranoid clients from other diagnostic groups (Harris, Wittner, Koppell, & Hilf, 1970, Scagnelli, 1975, Tarter & Perley, 1975; all in Greene, 1991), or found (Cooke, 1969, Kurleycheck & Jordan, 1980; Rogers & McKee, 1995) to vary significantly with responsibility (Cooke, 1969, Kurleycheck & Jordan, 1980; Rogers & McKee, 1995). This may be partly due to the very nature of paranoia and suspiciousness, which makes disclosure appear more threatening than for non-paranoid individuals, and thus may lead to underreporting of symptoms of paranoia. This may not be accurately assessed by scales such as L and K due to the fact that not being excessively paranoid (the defended endorsement for a suspicious person) would classify as normal. Equally, the Pa scale scores (and thus apparent lack of defensiveness) would still be fairly high (and thus not picked up by the K scale), as the Pa scale does not merely relate to persecutory ideas (most likely to be malingered), but also to other phenomenon such as poignancy and naiveté, which may not be as highly defended against. Equally, the malingerer would attempt to convey themselves as average, but may actually assume that a certain (fairly high) degree of suspiciousness is ‘normal’ in all individuals. The same configuration of elevated scores was found for the BIZ scale, which shares some item content with Pa.
- (2) The research by Rogers and McKee (1995) might again provide a partial explanation for the results of this study, in that once again their NCR group scored lower than their “responsible but mentally ill” group but higher than their “guilty and not mentally ill” group. Again this leads us to consider the impact of more paranoid personalities on the Pa scale, as well as the possibility that significant variance in responsibility with this scale depends largely on the proportional breakdown of the CR group.

(3) Much of the item content of this scale obviously acknowledges the existence of delusions and paranoid thought processes, with 23 obvious and 17 more subtle items (Graham, 1991), and may thus be somewhat susceptible to malingering. It can be hypothesized that NCR subjects have less motivation to malingering, which is why they end up with lower Pa scale scores. Support for this hypothesis come from research showing that forensic inpatient malingerers score significantly higher than genuine psychotic forensic inpatients or indeed than other studies using forensic inpatients (Schmalz et al., 1989; Holden et al, 1993; Moskowitz ) on many of the clinical scales, including the psychotic scales such as Pa. Equally, since prior research on responsibility described in these studies (Cooke, 1969, Kurleycheck & Jordan, 1980) used lower cut-off scores, thereby excluding more malingerers and ending up with the NCR group scoring non-significantly higher then the CR group. This argument would lend us to hypothesize that Pa scores (as perhaps with various other scale scores) should be subdivided, depending not only on the setting (there is research here, as explained above), but also depending on the F score cut-off for malingering.

#### **4.2.3.10 PSYCHAESTHENIA SCALE**

Responsibility groupings did not vary significantly in terms of the Pt scale, which was congruent with previous studies (Cooke, 1969, Kurleycheck & Jordan, 1980; Rogers & McKee, 1995).

Rogers and McKee (1995) had found that the NCR group scored significantly lower than the “guilty but mentally ill” group, but not significantly different to the overall CR group. Because of the heterogeneity of the scale, which was such that subdivision by factor analysis proved impossible (Greene, 1991), it was correctly hypothesized that it would be elevated due to general maladjustment in the Sterkfontein sample, but not likely to discriminate between responsible and not responsible individuals. It was thus not selected for discriminate analysis.

#### **4.2.3.11 SCHIZOPHRENIA SCALE**

In the Sterkfontein sample there was certainly no variance of responsibility groupings with the Sc scale, where anticipations had been mixed. On the one hand, previous studies using the MMPI (Cooke, 1969, Kurleycheck & Jordan, 1980) have tended to show that the Sc scale does vary with responsibility, with the NCR group tending to score higher. On the other (as with the Pa scale), both of these studies are fairly old, and used the original MMPI. There is perhaps more knowledge today around particularly the positive symptoms of psychosis, and this makes malingering potentially more accurate and harder to pick up in clinical interviews or indeed using assessment inventories. Equally, as can be seen above, the Sc scale is heterogeneous, and also

assesses many content areas that have little to do with psychosis *par se*, including alienation, issues around self-worth, sexual concerns, fears, and impulse control problems (Greene, 1991; Graham, 2000). This can be seen by the large number of items shared with non-psychotic scales such as D (8 out of 28), DEP (7 out of 33), HEA (6 out of 36) and FAM (6 out of 16), as well as with the more psychotic clinical scales such as Pa (13) and Ma (11). This is supported by research by Rogers and McKee (1995) who discovered that the “guilty but mentally ill” group scored significantly higher than their NCR group. Attempts to use the Sc scale to distinguish between schizophrenics and other psychotic groups have also failed to be replicated (Greene, 1991). In the end, the Sc scale was excluded from being used in the discriminant analysis due to the huge overlap in item content with certain other scales that were going to be used (there were high correlations in a preliminary correlation matrix with scales such as Pd, Pa, Ma, and BIZ), with only 16 from 78 items being unique to the Sc scale (Greene, 1991). The disadvantages of including variables with high correlations in the same discriminant analyses have been discussed in the “Method” section. Another reason for the exclusion of the Sc scale from the discriminant analysis is the extensive weight that is attached to the K scale in determining the K corrected T score of the SC scale, which means that fairly few Sc items are actually necessary to produce an elevated Sc scale (Greene, 1991).

#### **4.2.3.12 HYPOMANIA SCALE**

Responsibility groupings did not vary significantly with the Ma scale, which was as expected based on previous research (Cooke, 1969, Kurleycheck & Jordan, 1980; Rogers & McKee, 1995). However, it must be noted that the DCR group (not included as a unique grouping in the previous MMPI research on responsibility), scored lower than either the CR or NCR group, which were of a similar magnitude. This may be due to random error. However, a plausible hypothesis is that since the Ma scale can be viewed as a measure of both psychological and physical energy, this may imply that when the Ma scale is high then characteristics of other scales may be more likely to be acted out. Indeed, the content scale that the Ma scale correlated most highly with in the standardization sample was ASP (Butcher et al., 1990). The lack of “energy” in certain forensic cases may be something taken into account in an evaluation of diminished responsibility. The Ma scale was included in the discriminant analysis as it was hypothesized that content areas reflecting acting out behavior might be easily malingered, and the Ma scale would give some indication of acted out criminal behavior. Equally, with the exception of the Sc scale (not used) it has fairly little overlap with other scales, which reduces co-linearity.

#### **4.2.3.13 SOCIAL INTROVERSION SCALE**

Responsibility groupings did not vary significantly with the Si scale. However, it must be noted that both DCR and NCR were much higher than CR group, and variance when comparing CR with a combined DCR/NCR group approached significance. While it must be once again stressed that extreme caution must be used when looking at secondary analyses due to the increased chance of random error, it is interesting to notice that the NCR and DCR groups were more introverted, indeed with the Si scale being significantly elevated in both cases. Kurleycheck and Jordan (1980) also found that the NCR group scored non-significantly higher, but the research of Rogers and McKee (1995) had found that the NCR group scored non-significantly lower than the total criminally responsible group, and significantly lower than the “responsible but mentally ill” group. The Si scale was selected for discriminant analysis partly due to the fact that this is not a content area that superficially would make sense to malingering, and mostly because much of the item content for Si is unique.

#### **4.2.3.14 MACANDREWS ALCOHOLISM SCALE**

There has been little research on the ability of other scales (not the so-called clinical scales) to predict group membership based on responsibility, and they were selected mostly on rational grounds. It was felt that since the content in many of the other scales is somewhat obvious, having often been selected based on diagnostic criterion, that it would be particularly susceptible to malingering, and thus not of much use in a discriminant analysis. Largely, this hypothesis proved to be correct. The three content scales that were selected were selected because of the homogeneity of the areas that they covered, where any significant differences between groups either in terms of zero order variance or in the discriminant function, would have immediate clinical utility. The three content scales selected here were designed to cover the key content areas of antisocial practise, bizarre mentation and ego strength.

The two responsibility groupings did not vary significantly with the MAC-R scale, with the NCR group averaging slightly lower than the CR/DCR group. It had been thought that possibly endorsed levels of maladjustment, alcohol/drug abuse, acting out behaviour and antisociality might distinguish the groups on the MAC-R scale. A hypothesis (other than malingering) for the similarity of the scores for CR/DCR and NCR is that there were conflicting vectors, in that the NCR group arguably scored lower on alcohol abuse and tendencies towards antisociality, but higher on general levels of maladjustment.

#### **4.2.3.15 BIZARRE MENTATION SCALE**

It was not known to what extent genuine differences in levels of bizarre mentation might be reflected in scaled scores, or indeed possibly leveled out due to attempts to exacerbate symptomatology in order to ensure findings of NCR. No variance was found in the sample between the CR/DCR group and NCR group, although the DCR group themselves scored slightly higher than the other 2 groups.

#### **4.2.3.16 ANTISOCIAL PRACTISES SCALE**

Responsibility groupings did not vary significantly with the ASP scale, possibly due to malingering. Once again though, this factor did in fact help to differentiate the DCR group from the other two, with a discernible (6T) though non-significant difference in scores between DCR and CR/NCR.

#### **4.2.3.17 EGO STRENGTH SCALE**

The problem with analysis of the Es scale is that there are many, heterogeneous reasons for a lack of ego strength. Thus, it was not certain if there would be any sort of variance between responsibility and the Es scale. Bluntly put, a significant disintegration or fragmentation of personality would be likely to lead to a psychotic process, and an evaluation of NCR. Equally though, deficits in ego strength are reflected in characterological/personality deficiencies, and criminal acts due to personality disorder are not regarded as grounds for an evaluation of NCR. The Es scale was included in the discriminative analysis as it was hypothesized that the discriminative power of this scale might well be enhanced through including it with other factors in a discriminate analysis (see page 50 of “Method” section). In fact, the NCR group scored non-significantly lower than the CR/DCR group on the Es scale.

#### **4.2.4 HIGH POINT PAIRS**

Superficially, these results (see *table 7*) appear to differ from those of Kurleycheck and Jordan (1980), but then their research did not discuss well-defined, elevated high point pairs, which have a better reliability in replication (see *appendix 12*). There were three main differences in high points between the NCR and CR pre-trial forensic patients (see *appendix 24*).

Firstly, when looking at the overall incidence of scale 6 high point pairs, it was found that scale 6 (Pa scale) itself was in a high point pair in twenty nine percent of NCR code-types, as opposed to fifty four percent of CR/DCR code-types, which supports the finding above that the mean Pa scale was significantly more elevated in the CR/DCR group (see hypotheses mentioned above).

Secondly, scale 2 (D scale) was prevalent in high point pairs in forty three percent of NCR profiles as opposed to only eighteen percent of CR/DCR profiles. This is an interesting finding as it superficially appears to contradict the fact that the D scale was significantly lower in the NCR as opposed to the CR/DCR group. However, if we look at *appendix 21* it becomes obvious that the D scale T-scores are far more polarised in the NCR group, the majority of cases scoring either above 65T (67%) or below 40T (14%), and less than twenty percent scoring in the normal range. This polarisation was not found in the CR/DCR group, with most cases scoring in or above the normal range. This may be due to a polarisation between NCR offenders suffering extreme depression versus those perhaps suffering a certain dissociation of affect due to their psychosis. It appears that future research should perhaps divide scores on the D scale into categorical variables and use these to differentiate between responsible and not responsible individuals.

Thirdly, thirty six percent of the CR/DCR group high point pairs had scale 4 (Pd scale) in a high point pair, with seventeen percent having the high point pair 6-4/4-6, compared with the NCR group who had only 19% of high point pairs involving scale 4 and no 6-4/4-6 code types. This corresponded with the result that Pd varied significantly with responsibility. A comparison between this result and other measures of antisociality such as the ASP, ANG and CYN scales, which did not vary with responsibility, leads to the conclusion the comparative subtlety of the items leads to a reduction in malingering.

In fact, responsibility groupings varied significantly with the high point pairs 6-4/4-6 and 2-7/7-2, and the variance approached significance for the high point pair 6-8/8-6 (see *appendix 25*). Descriptions of these code-types (Graham, 2000; Greene, 2000) show that of the two code types most common to the CR/DCR group, the 6-4/4-6 code-type tends to be typically immature, narcissistic and self-indulgent, whilst the 6-8/8-6 code-type is more suspicious, mistrustful, anxious and depressed (which has tended to be seen as a more ‘psychotic’ code type). The code-type that was more common amongst the NCR group (2-7/7-2) is generally seen as a more “neurotic” code-type. These findings would lead to a caution in placing too much emphasis on a code-type interpretation of MMPI-2 scores, without contextualising the results within the context of other scale scores.

#### **4.2.5 SUMMARY OF DEMOGRAPHIC, CLINICAL, CRIMINAL AND PERSONALITY FACTORS OF PRE-TRIAL FORENSIC PATIENTS**

MMPI-2 scales with elevations were the infrequency and F-back validity scales, the depression, psychopathic deviate, paranoia, psychaesthesia and schizophrenia clinical scales, the anxiety, fears, depression, health concerns, bizarre mentation, work problems, and negative treatment

indicators content scales, and the Welsh anxiety scale, college maladjustment scale, the two post traumatic stress disorder scales and the marital distress scale being the elevated supplementary scales. Scales that were below normal in elevation were ego strength, dominance and male gender role.

Obviously, it is difficult to comment on the average pre-trial forensic patient, as this is far from a homogenous group. However, it is possible to comment, in general terms, on some of the personality features and psychopathology that is common to many pre-trial forensic patients. It seems prudent to repeat the comment that many of the symptoms mentioned below are exacerbated by the situational circumstances of incarceration, assessment, and an uncertain future.

The pre-trial forensic sample is a group who are characterized by poor ego resources, at the least in relation to the stressors that they are facing. This manifests in inflexibility, sometimes in disintegration or splitting in personality, and general maladjusted ways of coping with stress.

There is often poor morale, self-worth and self-confidence, lack of hope in the future and thus in recovery from the maintaining cycle they find themselves in, generating feelings of apathy, defeatism and pessimism. There tends to be an absence of pleasurable experiences, and indeed a pervasive sense of emptiness, manifesting sometimes in boredom and procrastination.

There is often interpersonal inflexibility sometimes resulting in oversensitivity, manifesting in social shyness and withdrawal. Defensiveness about social insecurities, on the other hand, can lead to a denial of insecurities about the self or the importance of others, which may manifest as a lack of empathy, denial of social shyness or the assertion of social confidence. Often this may mean that many of these patients lack genuine social resources. It appears that many pre-trial forensic patients struggle with self-criticism, guilt, self-alienation and a lack of self-worth.

Clearly the lack of ego strength of many of these patients means that their inflexible and inefficient defense mechanisms cannot cope with intrapsychic and interpersonal stressors. This manifests in anxiety and worry, irrational fears including social phobias, specific phobias, fear of loss of control, persecutory anxiety, and depression. As stress builds up, symptoms can resemble those following a serious trauma, and interfere with sleep, concentration, and even lead to suicidal thoughts and ideation. This together with problems with authority figures and general apathy and despondency can lead to problems with work performance, and indeed undermine therapeutic efforts.

Intrusive thoughts, often surrounding loss of control, may give rise to obsessions and compulsions, or indeed to more severe distortions of reality. Ways that this might manifest might include a complete disintegration of ego resulting in a collapse in the distinction between fantasy and reality (psychotic process), or pervasive patterns of malformed personality structures (personality disorders) often resulting in ego syntonic acting out behavior, or indeed in neurotic inflexible coping mechanisms such as denial, avoidance, undoing, and somatization (neurotic processes) which, under the influence of subjectively severe stress may result in situational ego dystonic behavior.

### **4.3 DISCRIMINANT ANALYSIS\*#**

A primary aim of these analyses was to examine how well the 16 demographic and clinical and MMPI-2 variables could discriminate between the NCR and CD/DCR groups. The MMPI-2 variables were chosen *a priori*, and thus were not necessarily the ‘best’ discriminators. For example, scale 2 (D scale), which turned out to account for the most (zero order) variance, was not chosen *a priori* as a discriminator, and thus was not used.

The other primary purpose of these analyses was to examine the usefulness of the MMPI-2 scales in terms of adding discriminative power to the demographic and clinical indices. Therefore, a discriminant analysis was also run looking just at the discriminative power of the MMPI-2 variables, as well as an analysis examining the discriminative power of just the demographic and clinical variables. Lastly, many of the clinical variables are somewhat objective, in that they are open to interpretation by the multidisciplinary team (and to unquantifiable distortion by the patient). These variables, such as psychosis, diagnosis and presence of substance abuse or dependence, account for a large amount of variance in the discriminant analyses. Subjectivity can impede accuracy, and objective measures are also often held in far higher regard by legal institutions. Added to this, many demographic variables would be expected to fluctuate somewhat in a country as heterogeneous as South Africa. The MMPI-2, although completed by the subject, is objective in the sense that it is scored based on set equations (which also qualify and quantify distortion), and has no room for subjectivity by the assessor. (One of the goals of this dissertation is to begin to create objective (standardised) principles by which it can also be interpreted.). Therefore, an attempt is made to examine the possibility of an “objective” (in the sense mentioned above) measurement of responsibility and personality.

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\* (In the analyses below, except for the subsection where this is specifically mentioned, all discriminant functions involve only two tiers of responsibility, criminally responsible, or criminally not responsible, with the CR and DCR groups being collapsed.)

# (Much of the rationale for discriminative power of variables has been discussed under the previous section, examining unpartialled variance, and will not be repeated here.)

### **4.3.1 HOW WELL THE DEMOGRAPHIC/CLINICAL AND/OR MMPI-2 VARIABLES CAN DISCRIMINATE BETWEEN RESPONSIBLE AND NOT RESPONSIBLE PRE-TRIAL FORENSIC PATIENTS**

Discriminant analysis was employed to create a linear composite that maximally discriminates between the different responsibility groups (i.e. a discriminant function of the 16 demographic, diagnostic and MMPI-2 variables). Each discriminant function (where there is more than one, for example when comparing CR v DCR v NCR, see *appendix 28*) is decreasingly discriminating and mutually uncorrelated (Cohen & Cohen, 1983). Subjects were then reclassified by assigning them based on their discriminant scores' proximity to the discriminant score means of the group (Cohen & Cohen, 1983). For this study the groups were divided up only into the general groups of responsible (CR + NCR) versus not responsible (NCR), and thus there is only one discriminant function in each discriminant analysis.

#### **4.3.1.1 DISCRIMINANT ANALYSIS OF RESPONSIBILITY WITH DEMOGRAPHIC, CLINICAL AND MMPI-2 VARIABLES**

In the discriminant analysis comparing all 16 clinical, demographic and MMPI-2 variables (see *table 20*), psychosis, diagnosis, Pa, Es, Race and substance abuse were all significant, with an overall discriminant function that was highly significant ( $df=(6,70)$ ,  $F=45.732$ ,  $p<.0005$ ). It had a high successful prediction rate of ninety six percent, with only 3 cases out of 77 being assigned to the incorrect responsibility group. It is interesting to note that many variables both in this discriminant analysis and in the ones to follow had significant unique discriminative power (partialled variance), and yet did not have significant unpartialled variance (as earlier analysed with one-way ANOVA's or Chi-squared's). This appears to show that, as described by Cohen & Cohen (1983) suppression of variance may well undermine the predictive power of some analyses of variance using the MMPI-2.

#### **4.3.1.2 DISCRIMINANT ANALYSIS OF RESPONSIBILITY WITH MMPI-2 VARIABLES**

In the discriminant analysis involving just the selected MMPI-2 scales (see *table 22*), Pa, Es, MAC-R and Mf had significant contributions, with BIZ being just not significant. The NCR group on average had significantly lower scores on the paranoia scale, ego strength scale, MacAndrews alcoholism scale - Revised, Masculinity-Femininity scale, and a non-significantly lower score on the Bizarreness scale. These scales produced a highly significant function ( $df=(5,73)$ ,  $F=6.474$ ,  $p<.0005$ ) that was able to predict group membership with a fair level of accuracy (82% overall).

In fact, the overall successful prediction rate was slightly higher than the “objective” demographic, clinical, plus MMPI-2 variables (see *appendix 27*), which shows that the “objective” clinical and demographic variables themselves do not really appear to have a meaningful unique contribution to the prediction of responsibility over and above that which is made by the MMPI-2 scales.

#### **4.3.1.3 DISCRIMINANT ANALYSIS OF RESPONSIBILITY WITH DEMOGRAPHIC AND CLINICAL VARIABLES**

In the discriminant analysis involving clinical and demographic variables (see *table 21*), psychiatric diagnosis, presence of psychosis at the time of the assessment, race and substance abuse all had significant contributions. These were expected, with the NCR group receiving more major diagnoses or diagnoses of a psychotic disorder, more evaluations of the presence of psychosis at the time of the assessment, were more likely to be white, and less likely to suffer from substance abuse. It does appear that the DCR group is in fact more similar to the NCR in terms of abusing fewer substances than the CR group. The high percentage of correct predictions when reassigning cases to groups (93%) shows that these four factors are clearly extremely important. Note though, that this does not necessarily mean that these four factors lead to (cause) an evaluation of CR or NCR. It is possible that in fact other factors (e.g. malingering) help to “cause” both the variables and the responsibility group allocation, or that opinions on group allocation may influence some of the (“subjective”) variables.

#### **4.3.1.4 CROSS-VALIDATION STUDY**

Obviously, when the identical sample that was used to derive a discriminant function is then reclassified via this equation to assess the accuracy of the equation, there is always the risk of grossly inflated prediction rates. Because of this, a cross-validation study used every odd numbered case (with all 16 demographic, clinical and MMPI-2 variables), to derive a discriminant equation. This equation was used to reclassify every even numbered case into responsibility groupings of CR/DCR or NCR. A prediction success rate of over 94 percent (only 2% less than that obtained for a reclassification of all cases based on a discriminant function derived from those cases) was higher than expected. It appears to demonstrate a certain resilience of the discriminant function, certainly within this hospital, and possibly within this socio-demographic area within Gauteng. The generalizability of this equation to other demographic and socio-economic areas has of course yet to be demonstrated.

### **4.3.2 SIGNIFICANCE OF THE IMPACT OF MMPI-2 SCALES IN DISCRIMINATION BETWEEN RESPONSIBLE AND NOT RESPONSIBLE**

It was discovered that, using the same data set to reassign cases to responsibility groups, the MMPI-2 variables added three percent predictive power from the demographic and clinical variables alone, or an equivalent of 3 rather than 6 incorrect cases. This may be a more important influence than is superficially obvious:

- (1) The main reason for the relatively small increase in predictive power added by using the MMPI-2 scales is due to the high predictive power of the demographic and clinical variables themselves. These are likely to be somewhat inflated for a number of reasons:
  - (a) The “demographic” discriminant equation is likely to be affected to some degree by a change in location (and thus in sample), particularly in a nation as heterogeneous as SA, and thus, for example, further studies will have to test how well it is applicable to the Eastern Cape.
  - (b) It is quite likely that the “subjective” clinical variables such as diagnosis, and psychosis are not just the cause of the final evaluation on responsibility, but also influenced by it. It is beyond the scope of this dissertation to go into a detailed analysis of the qualitative procedure of decision-making by a forensic multidisciplinary team, but it appears likely that diagnoses are perhaps sometimes influenced as a partially justification for an evaluation of responsibility.
  - (c) Equally, it can be argued that both responsibility and diagnosis are not so much in a cause-effect relationship with each other, but both by-products (effects) of interpretation of behavioral patterns that the observation patient produces. Thus, although diagnosis adds substantially to the discriminant function of responsibility, it may do so more in the sense that the two covary together, and there may be a percentage of cases where diagnosis does not add to the *accurate* prediction of responsibility.
- (2) In a hospital that assesses responsibility in many forensic observation cases every month, a relatively small increase in predictive power will translate into a great number of cases. The MMPI-2 also adds qualitatively useful information about the subject for very little effort by the clinician.
- (3) Obviously some variables, such as race, are invariable, and cannot be influenced by others, but many of these variables are, in fact, quite subjective. It was therefore decided to run a discriminant analysis using only “objective” variables. This lead to a discriminant function where only psychiatric history had a significant contribution, and which was poor at

predicting group membership. Once the other “objective” variables, the MMPI-2 scales, were added in, several variables (Psychiatric History, Pa, Es, BIZ and MAC-R) had significant contributions, and produced a far more significant discriminant function, which was a better predictor of group membership.

- (4) The MMPI-2 is clearly also a useful tool for identifying malingering and other forms of response bias in forensic samples (see *appendix 25*).
- (5) Irrespective of placement in a prison or inpatient forensic hospital, rehabilitation of offenders to prevent either recidivism or rehospitalization after release requires appropriate treatment plans. The MMPI-2, through the typological classification of criminals (Megargee, 2001), provides insight into different personality types of offenders as well as a treatment and rehabilitation infrastructure for each type (and a risk assessment), thus creating a way of maximizing scarce resources in SA in order to do this as efficiently as possible.

#### **4.3.3 SYNTHESIS OF FACTORS THAT DISCRIMINATED SIGNIFICANTLY BETWEEN PRE-TRIAL FORENSIC PATIENTS FOUND CR/DCR AND NCR**

The sample differs first and foremost in terms of the overall clinical impression that is conveyed by the forensic patient to the multi-disciplinary team, which obviously covers many different aspects of assessment, but which appears to have a very significant link to whether or not the patient is regarded as psychotic. If the patient were assessed to be suffering from a pervasive psychotic disorder (e.g. schizophrenia), this would make it more likely that there was some degree of psychosis at the time of committing the offence. The correlation between diagnosis and responsibility is even stronger than that between psychosis and responsibility, which is also very large. The reason for this is probably because most pre-trial forensic observations take place a considerable amount of time (often years) after the actual crime took place. Current psychosis obviously makes it more likely that there was some sort of psychosis in the past that may have influenced the mental state of the patient enough to make them not responsible for their actions. However, many psychotic episodes are somewhat transitory, and it is extremely difficult for psychiatric teams to make any accurate prediction on the past mental state based on a current assessment. However, it can be noticed that psychiatric history, which was a significant factor when looking at zero order variance (one way ANOVA's and Chi-square's), is not a significant factor in the full equation. This may well be because it is accounted for by the diagnosis variable, in that many diagnostic decisions are made by considering past psychiatric records, and if, for example, a patient has already had several admissions for depression or psychosis, it makes it far

more likely that a formal diagnosis would be given. Obviously, a past psychiatric record would also make it more likely that the subject was being affected by a psychiatric condition at the time of the offence, (particularly since this makes malingering less likely), which is perhaps why the zero order variance of responsibility with diagnosis is stronger than that of the zero order variance of responsibility with psychosis.

NCR subjects have a lower rate of endorsing psychotic type symptomatology (such as Pa or BIZ) than CR subjects. This must be addressed by looking at the broader picture. Firstly, NCR subjects displayed a lower level of endorsing symptomatology for many of the other scales too. A plausible hypothesis is that they had less motivation to maximize their pathology (the CR group might be more likely to increase symptoms to malingering psychosis to get off) or, conversely, more 'reason' to conceal their psychotic symptomatology (more genuinely paranoid, which might make them more motivated to conceal symptoms). An interesting alternative hypothesis is that the majority of people who adopt the 'insanity' plea are, in fact, quite severely disturbed, with symptomatology including depression, anxiety, impulsivity etc., which, in general terms, can be seen to result from either severe personality problems, underlying psychotic processes, or both. However, the number of cases in this sample not receiving any diagnosis might make this less likely.

NCR patients appear to have significantly less ego strength than the CR patients. This also appears to account for variance outside of the psychotic/not psychotic dimension, and thus cannot only be accounted for by the notion that psychotic individuals tend to have less ego strength than non-psychotic individuals. It might be, over and above the presence or absence of psychosis, that ability to deal with stressors (and thus indirectly also the size of the stressors) may be a factor that clinicians assess. The greater the psychological distress (manifesting in subjective distress as well as level of functioning), the greater the chance of the person being found to be not responsible for their actions.

The NCR group has a lower incidence of substance abuse than the CR group. Interestingly enough, the DCR group scored more similarly to the NCR group than CR group in levels of abuse/dependence, and actually had lower levels of extremely severe substance abuse than the NCR group. This was perhaps reflected in scores on the MacAndrews Alcoholism scale (measuring general levels of distress, together with alcohol and other drug use), where the DCR group scored between the NCR and CR group. This (comparatively) low level of abuse/dependence on substances, and particularly of extremely severe substances, appears to

have been a contributing factor in the finding of DCR, as opposed to CR. It can be seen that the MAC-R, which had a significant unique contribution to make when comparing CR with NCR on only MMPI-2 variables falls away in the greater discriminant function, which is to be expected as it probably covaries with substance abuse.

Lastly, race appears to still have a significant contribution to the overall discriminant function, with white people more likely to be found not responsible. It appears that once obvious cases (either clearly NCR or clearly CR) have been assessed, a white person is still more likely to be found not criminally responsible when it comes down to the more borderline decisions. This is something that has also been found in USA in some research, and may be due to several reasons:

- (1) Clearly, this may show up a certain inaccuracy in psychiatric decisions on responsibility, as race, per se, should not be a relevant factor in responsibility. This might be due to unconscious prejudice on the part of the multidisciplinary team, in situations that are less clear and where they have less clear-cut evidence to base a professional opinion on. These debates fall in the realm of social psychology, with theory on in-groups and out-groups, which is beyond the scope of this thesis.
- (2) However, it is necessary to be extremely cautious here, as being white in SA may well be correlated with all sorts of other factors, which might legitimately be expected to influence responsibility. Thus, it may not actually be the fact that the person is white or not that influences the multidisciplinary team, but rather some other (extra-test) variable that happens to be correlated with race.
- (3) It may be due to Type I error, made more likely by small sample size and the large number of analyses being conducted.

Although the D scale was not used in the discriminant function, it must be noted that the CR group scored on average significantly higher than the NCR group in an analysis of zero order variance (ANOVA). However, an analysis of frequency of scores showed that the NCR group tended to have polarized scores (below 40T or above 65T), implying that they tended to be either far more depressed or far less depressed than the CR/DCR group. Possible explanations for this cannot rule out random error. However, assuming that the results are valid, the following hypotheses might help to explain this unexpected result:

- (1) Reasons why some of the NCR group may indeed have significantly lower levels of subjective depression than the CR/DCR group might include the following:

- (a) Relatively high levels of psychosis in the NCR group may have resulted in a level of emotional detachment from reality, which might repress subjective symptoms of depression.
  - (b) The DCR group in particular obtained extremely high D scale scores, which may be based on a realization and understanding of the (possibly ego dystonic) offenses they had committed.
  - (c) Thirty percent of the pre-trial group had experienced psychiatric hospitalization in the past, and most of these were classified as NCR. This group may have reacted (adapted) somewhat better to their environment as they had experienced something similar in the past.
  - (d) In contrast to this, many of the CR group are personality disordered or have strong traits, often of Cluster B, which includes Antisocial Personality Disorder, Narcissistic Personality disorder, Borderline Personality Disorder and Histrionic personality Disorder. These individuals are prone to viewing stressors in a very personal way, and tend to react badly to environmental control (which is part and parcel of being assessed and judged by the medico-legal system), and this might exacerbate their depression.
  - (e) Some of the NCR group might feel they are likely to be found not responsible.
- (2) A smaller group of NCR patients might well feel extremely high levels of subjective depression, probably as a direct or indirect function of their pathology (e.g. somebody suffering from mood induced psychosis, or the offender who is extremely paranoid and lives his whole life in fear and despair that the world is about to end).

The Ma scale did not discriminate significantly between NCR and CR/DCR groups in the main discriminant analysis. However, further analysis shows the DCR group scored significantly lower than both the NCR and the CR groups, thereby lowering the combined total CR (DCR + CR). A tentative hypothesis here is that the decreased energy levels (physical and emotional) of the DCR group compared to the CR group, which might imply that a far greater stressor would be necessary for pathology to result in acting out behavior. Thus, although the DCR group tends to have similar overall levels of psychopathology as the CR group, it may be that the multidisciplinary team would view them as less likely to actually be acting in character by committing whatever offence they committed. Thus, it may be that more weight would be attached to the external stressors faced by these individuals than to any flaws in their characters, due to the fact that they would be less likely to act out their pathology. Of course, the results could be due to random error, and it would take considerable research to add weight behind this hypothesis.

An intriguing point is that the Pd scale, as expected, showed significant (zero-order) variance when ANOVA's were conducted, with the NCR group scoring lower than the CR/DCR group. However, it did not contribute significantly to any of the discriminant analyses, and thus its partialled correlation with responsibility was not significant. It might be hypothesized that there is some degree of collinearity between the Pd scale and some other variable, such as the Pa.

#### **4.4 LIMITATIONS OF STUDY**

This study suffered several limitations.

- (1) Risk of Type I error: The study had a small sample size, and because of this the number of variables that could be used in the discriminant analysis was curtailed to sixteen, which already raises concerns over Type I error. Further analyses were conducted, beyond these sixteen variables, and results of additional analyses should be viewed as provisional.
- (2) No inter-rater reliability: It was not possible to evaluate inter-rater reliability for the sample.
- (3) Caution must be taken with the generalizability of results: The sample used was post hoc, was from data collected from pre-trial forensic patients over several years, and was all taken from one psychiatric hospital. Reclassification of data using the discriminative equation was conducted using the same sample, which (although a cross-validation analysis was conducted) may also inflate predictive power of this particular discriminant function when used on other psychiatric populations. It is recommended that researchers with populations divergent from Sterkfontein Hospital create their own discriminant equations over time, based on their own databases.
- (4) Validity of Megargee typologies to SA offender populations was not thoroughly evaluated. Evaluation of the applicability of the Megargee system to SA offenders that was conducted in this study was superficial. Preliminary conclusions are that this typological classification system is indeed valid for SA populations, but a thorough quantitative analysis (probably involving a factor analysis of SA criminal populations) will be necessary before it can be implemented on a widespread basis.

#### **4.5 RECOMMENDATIONS**

The MMPI-2 is a thoroughly researched, internationally well utilized inventory, that has uses in the forensic areas of violence prediction, personality assessment, assessment of malingering, discrimination between criminally responsible and not responsible, and indeed indirectly in the placement, risk assessment, treatment and rehabilitation of offenders.

#### **4.5.1 MMPI-2 TO BE USED FOR A THOROUGH UNDERSTANDING OF THE PRE-TRIAL FORENSIC PATIENT, FORENSIC INPATIENT AND INMATE**

Despite the wealth of international literature on pre-trial forensic patients, it does not appear that much of this research is utilized pragmatically in applied forensic settings in South Africa. Many psychiatric and correctional centers make scant use of psychological resources beyond the clinical interview and cognitive assessments. When inventories are used in forensic settings, many are actuarial inventories predicting risk (rather than personality inventories), which are indeed extremely useful in their own right, but that do not provide a thorough understanding of the personality dynamics of the patient.

As has been shown in this dissertation, the MMPI-2 can provide a thorough understanding of the forensic patient, not only to discern responsibility, likelihood of recidivism, etceteras, but actually of whom they are as an individual, and the dynamics underlying their commission of the crime. The MMPI-2 can provide this in two ways.

- (1) Through the validity, clinical content and supplementary scales and the wealth of international (as well as budding SA) research on interpretations of these scales through high-points, elevations and troughs, and overall patterns of scores.
- (2) Through the Megargee criminal classification system.

#### **4.5.2 MMPI-2 TO BE USED FOR THE PLACEMENT, TREATMENT AND MANAGEMENT OF FORENSIC PATIENTS AND OTHER OFFENDERS**

This dissertation does not thoroughly address this issue, but it is intimated that the MMPI-2, through the use of the Megargee classification system for offenders can be utilized, irrespective of classification as responsible or not responsible, for the effective management and placement of offenders, both into psychiatric hospitals and prisons. This system that breaks down offenders into ten personality typologies, which enables a broad understanding to be utilized for general treatment, management and placement programs both in prisons and forensic inpatient hospitals. This system could be well utilized in South Africa, where crime is rife and resources particularly scarce, to examine the programs overseas that utilize this system and then structure them to work within the unique needs and limitations of SA psychiatric, legal and correctional settings. It has been shown to be effective internationally in the rehabilitation and treatment of offenders, with effective follow-up programs to prevent recidivism of rehospitalization.

#### **4.5.3 MMPI-2 TO BE USED FOR THE ASSESSMENT OF RESPONSIBILITY WITH PRE-TRIAL FORENSIC PATIENTS**

It has been shown that the MMPI-2 can be utilized effectively, together with the clinical interview and demographic, clinical and criminal data, in the prediction of responsibility of pre-trial forensic patients, with psychiatric diagnosis, presence of psychosis, the MMPI-2 paranoia and ego strength scales, race and substance abuse all having unique predictive power. It was also emphasized that the addition of the MMPI-2 to the predictive power of demographic and clinical variables alone is perhaps somewhat greater than is superficially apparent from the 3% unique predictive power added by the MMPI-2 scales. It is thus maintained that the MMPI-2 is a low cost (in terms of time and personnel), effective inventory that should be utilized in all assessments of responsibility where the offender is able to complete it effectively.

#### **4.5.4 NEED FOR MMPI-2 RESEARCH, PARTICULARLY IN THE FORENSIC FIELD, IN SOUTH AFRICA**

South African literature on the MMPI and particularly the MMPI-2 is extremely sparse. The studies that do exist are mainly outdated, non-forensic, and were conducted using the original MMPI. Suggested areas for further research using the MMPI-2 include:

- (1) Assessment of criminal responsibility both overseas and in SA.
- (2) Research on malingering in a SA context, particularly regarding the most useful cut-off scores for different forensic populations.
- (3) Examination of the validity of the Megargee classification system in a SA context.
- (4) Norms (including forensic) for various SA population subgroups
- (5) Translation (and the creation of norms) of the MMPI-2 into other South African languages.

This is vital if the MMPI-2 is to be able to be utilized in the majority of psychiatric and forensic assessments in SA.

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## APPENDICES

### APPENDIX 1: USING THE MMPI TO DISCRIMINATE BETWEEN OFFENSE TYPES

| Quinsey, Arnold, Pruesse, 1980 |                         |                             |       |      |                   |                   |
|--------------------------------|-------------------------|-----------------------------|-------|------|-------------------|-------------------|
|                                | Murder of Family Member | Murder of Non-Family member | Arson | Rape | Child Molestation | Property Offences |
| L                              | 53                      | 52                          | 55    | 46   | 50                | 49                |
| F                              | 71                      | 72                          | 69    | 73   | 72                | 83                |
| K                              | 42                      | 41                          | 44    | 37   | 41                | 41                |
| Hs                             | 60                      | 57                          | 52    | 53   | 59                | 57                |
| D                              | 68                      | 73                          | 66    | 65   | 71                | 68                |
| Hy                             | 63                      | 60                          | 56    | 56   | 60                | 58                |
| Pd                             | 75                      | 72                          | 71    | 74   | 74                | 75                |
| Mf                             | 63                      | 58                          | 52    | 55   | 57                | 56                |
| Pa                             | 61                      | 63                          | 61    | 62   | 64                | 67                |
| Pt                             | 66                      | 69                          | 62    | 63   | 69                | 69                |
| Sc                             | 72                      | 72                          | 68    | 72   | 76                | 78                |
| Ma                             | 59                      | 57                          | 57    | 60   | 57                | 67                |
| Si                             | 52                      | 61                          | 51    | 53   | 54                | 50                |
| A                              | 54                      | 54                          | 50    | 53   | 55                | 55                |
| R                              | 47                      | 49                          | 48    | 47   | 50                | 44                |
| ES                             | 44                      | 45                          | 46    | 46   | 43                | 45                |
| O-H                            | 48                      | 52                          | 52    | 47   | 49                | 51                |

Values are average scale scores for each category

## APPENDIX 2: MMPI RESEARCH ON VARIOUS POPULATIONS

|       | Inmates                 |                         |                         | Forensic Inpatients     |                            |                         |                          |                          | Psychiatric Inpatients  |                            |
|-------|-------------------------|-------------------------|-------------------------|-------------------------|----------------------------|-------------------------|--------------------------|--------------------------|-------------------------|----------------------------|
|       | Schmalz et al. (1989) # | Boscan et al. (2002) ## | Holland et al. (1983) # | Schmalz et al. (1989) # | Moskowitz et al. (1999) ## | Holden et al. (1993) ## | Boersma et al. (1993) ## | Boersma et al. (1993) ## | Schmalz et al. (1989) # | Moskowitz et al. (1999) ## |
|       |                         |                         |                         |                         |                            | Women                   | Psychotic                | Malingers                |                         |                            |
| L     | 50                      | 64                      | 49                      | 49                      | 59                         | 58                      | 56                       | 56                       | 49                      | 52                         |
| F     | 61                      | 74                      | 52                      | 67                      | 58                         | 82                      | 100                      | 112                      | 64                      | 75                         |
| K     | 48                      | 48                      | 51                      | 47                      | 53                         | 48                      | 40                       | 43                       | 44                      | 46                         |
| Hs    | 54                      | 59                      | 51                      | 59                      | 51                         | 71                      | 67                       | 76                       | 64                      | 61                         |
| D     | 60                      | 57                      | 57                      | 68                      | 52                         | 73                      | 66                       | 77                       | 78                      | 65                         |
| Hy    | 55                      | 51                      | 53                      | 60                      | 51                         | 65                      | 59                       | 70                       | 65                      | 56                         |
| Pd    | 66                      | 63                      | 65                      | 70                      | 62                         | 70                      | 69                       | 75                       | 67                      | 69                         |
| Mf    | 52                      | 44                      | 54                      | 56                      | 50                         | 50                      | 49                       | 57                       | 62                      | 56                         |
| Pa    | 57                      | 62                      | 53                      | 66                      | 57                         | 73                      | 90                       | 97                       | 65                      | 67                         |
| Pt    | 59                      | 61                      | 55                      | 66                      | 51                         | 69                      | 70                       | 82                       | 76                      | 65                         |
| Sc    | 63                      | 72                      | 55                      | 76                      | 58                         | 75                      | 86                       | 96                       | 80                      | 71                         |
| Ma    | 61                      | 62                      | 56                      | 62                      | 53                         | 56                      | 59                       | 68                       | 58                      | 53                         |
| Si    | 50                      | 55                      | 52                      | 53                      | 51                         | 57                      | 62                       | 64                       | 58                      | 60                         |
| ANX   |                         | 59                      |                         |                         |                            |                         |                          |                          |                         |                            |
| FRS   |                         | 68                      |                         |                         |                            |                         |                          |                          |                         |                            |
| OBS   |                         | 58                      |                         |                         |                            |                         |                          |                          |                         |                            |
| DEP   |                         | 64                      |                         |                         |                            |                         |                          |                          |                         |                            |
| HEA   |                         | 63                      |                         |                         |                            |                         |                          |                          |                         |                            |
| BIZ   |                         | 67                      |                         |                         |                            |                         |                          |                          |                         |                            |
| ANG   |                         | 56                      |                         |                         | 57                         |                         |                          |                          |                         | 60                         |
| CYN   |                         | 60                      |                         |                         | 56                         |                         |                          |                          |                         | 61                         |
| ASP   |                         | 60                      |                         |                         | 55                         |                         |                          |                          |                         | 62                         |
| TPA   |                         | 55                      |                         |                         |                            |                         |                          |                          |                         |                            |
| LSE   |                         | 61                      |                         |                         |                            |                         |                          |                          |                         |                            |
| SOD   |                         | 55                      |                         |                         |                            |                         |                          |                          |                         |                            |
| FAM   |                         | 58                      |                         |                         |                            |                         |                          |                          |                         |                            |
| WRK   |                         | 58                      |                         |                         |                            |                         |                          |                          |                         |                            |
| TRT   |                         | 64                      |                         |                         |                            |                         |                          |                          |                         |                            |
| A     |                         | 60                      |                         |                         |                            |                         |                          |                          |                         |                            |
| R     |                         | 48                      |                         |                         |                            |                         |                          |                          |                         |                            |
| ES    |                         | 39                      |                         |                         |                            |                         |                          |                          |                         |                            |
| FB    |                         | 84                      |                         |                         |                            |                         |                          |                          |                         |                            |
| TRIN  |                         | 65                      |                         |                         |                            |                         |                          |                          |                         |                            |
| VRIN  |                         | 70                      |                         |                         |                            |                         |                          |                          |                         |                            |
| O-H   | 57                      | 55                      |                         | 53                      |                            |                         |                          |                          | 49                      |                            |
| DOM   |                         | 37                      |                         |                         |                            |                         |                          |                          |                         |                            |
| Re    |                         | 39                      |                         |                         | 43                         |                         |                          |                          |                         | 42                         |
| MT    |                         | 57                      |                         |                         |                            |                         |                          |                          |                         |                            |
| GM    |                         | 37                      |                         |                         |                            |                         |                          |                          |                         |                            |
| GF    |                         | 40                      |                         |                         |                            |                         |                          |                          |                         |                            |
| PK    |                         | 62                      |                         |                         |                            |                         |                          |                          |                         |                            |
| PS    |                         | 63                      |                         |                         |                            |                         |                          |                          |                         |                            |
| MAC-R |                         | 64                      |                         |                         |                            |                         |                          |                          |                         |                            |

# MMPI (corrected -5)

## MMPI-2

### APPENDIX 3: DIAGNOSES

|                            | Callahan et al. (1991) |                 | Pasewark et al. (1979) | Steadman et al. (1983) |             | Janofsky et al. (1989) |             | Hodgkins (1983) |        | Pasewark et al. (1982) |        | Pasewark et al. (1987) |             |      |
|----------------------------|------------------------|-----------------|------------------------|------------------------|-------------|------------------------|-------------|-----------------|--------|------------------------|--------|------------------------|-------------|------|
|                            |                        |                 |                        |                        |             |                        |             | Not Responsible |        | Not Responsible        |        |                        |             |      |
|                            | PTFP                   | Not Responsible | Not Responsible        | Not Responsible        | Responsible | Not Responsible        | Responsible | Male            | Female | Male                   | Female | Not Responsible        | Responsible | PTFP |
| Schizophrenic              | 43                     | 68              | 68                     |                        |             |                        |             |                 |        | 57                     | 37     |                        |             |      |
| Other major Mental Illness | 12                     | 16              |                        |                        |             |                        |             |                 |        |                        |        |                        |             |      |
| Mental Retardation/organic | 7                      | 5               |                        |                        |             |                        |             |                 |        |                        |        | 6                      | 5           | 5    |
| Personality Disorder       | 15                     | 4               | 10                     |                        |             |                        |             |                 |        | 12                     | 25     | 8                      | 24          | 20   |
| Mentally Ill               | 7                      | 3               |                        |                        |             |                        |             |                 |        | 5                      | 0      | 3                      | 36          | 27   |
| Other                      | 6                      | 5               |                        |                        |             |                        |             |                 |        |                        |        | 0                      | 1           | 1    |
| Not Mentally Ill           | 10                     | 0               |                        |                        |             |                        |             |                 |        |                        |        | 0                      | 6           | 4    |
| Total Major Mental Illness | 55                     | 84              |                        |                        |             |                        |             |                 |        |                        |        |                        |             |      |
| Psychosis                  |                        |                 |                        | 82                     | 28          | 64                     | 20          | 69              | 79     |                        |        | 64                     | 10          | 24   |
| CR vs. NCR                 |                        |                 |                        |                        |             |                        |             | 62              | 66     |                        |        |                        |             |      |
| Affective                  |                        |                 |                        |                        |             |                        |             |                 |        |                        |        | 7                      | 7           | 8    |
| Antisocial                 |                        |                 |                        |                        |             |                        |             |                 |        |                        |        | 0                      | 16          | 12   |
| Paranoid Schizophrenic     |                        |                 |                        |                        |             |                        |             |                 |        |                        |        | 46                     | 6           | 17   |

Figures denote percentages of each responsibility variable.

PTFP – Pre-trial Forensic Patient

### APPENDIX 4: CRIME + PAST HOSPITAL RECORD

|                            | Rogers & McKe (1995) | Callahan et al. (1991) |                 | Pasewark et al. (1979) | Shah et al. (1994) | Janofsky et al. (1989) |             | Hodgkins (1983) |        | Pasewark et al. (1982) |        | Pasewark et al. (1987) |             |      |
|----------------------------|----------------------|------------------------|-----------------|------------------------|--------------------|------------------------|-------------|-----------------|--------|------------------------|--------|------------------------|-------------|------|
|                            |                      |                        |                 |                        |                    |                        |             | Not Responsible |        | Not Responsible        |        |                        |             |      |
|                            | PTFP                 | Responsible            | Not Responsible | Not Responsible        | Not Responsible    | Not Responsible        | Responsible | Male            | Female | Male                   | Female | Not Responsible        | Responsible | PTFP |
| Murder                     | 61.2                 | 14                     | 15              |                        |                    | 0                      | 15          |                 |        | 64                     | 88     | 22                     | 18          | 19   |
| Attempted Murder           |                      |                        |                 |                        |                    |                        |             |                 |        |                        |        |                        |             |      |
| Murder+ Attempted          |                      |                        |                 |                        | 40                 |                        |             |                 |        |                        |        |                        |             |      |
| Assault                    | 15.8                 | 29                     | 38              |                        | 31                 |                        |             |                 |        |                        |        |                        |             |      |
| Other violent              |                      | 7                      | 12              |                        |                    |                        |             |                 |        |                        |        |                        |             |      |
| Robbery                    |                      | 11                     | 7               |                        |                    |                        |             |                 |        |                        |        | 50                     | 71          | 65   |
| Rape                       | 4.9                  |                        |                 |                        |                    |                        |             |                 |        |                        |        | 11                     | 11          | 11   |
| Total person               |                      |                        |                 |                        |                    | 50                     | 81          |                 |        |                        |        |                        |             |      |
| Property                   |                      | 26                     | 18              |                        |                    | 50                     | 19          |                 |        |                        |        | 37                     | 22          | 27   |
| Minor                      |                      | 13                     | 10              |                        |                    |                        |             |                 |        |                        |        |                        |             |      |
| Total violent on person    |                      | 50                     | 65              |                        |                    |                        |             | 44              | 52     |                        |        | 19                     | 19          | 19   |
| Victim known               |                      |                        |                 | 63                     |                    |                        |             | 64              |        |                        |        |                        |             |      |
| % with single victim       |                      |                        |                 | 84                     |                    |                        |             |                 |        |                        |        |                        |             |      |
| Worst crime murder         |                      |                        |                 | 59                     |                    |                        |             |                 |        |                        |        |                        |             |      |
| Prior arrests for men      |                      |                        |                 | 2.4                    |                    |                        |             |                 |        |                        |        |                        |             |      |
| % with prior arrest record |                      |                        |                 | 44                     |                    |                        |             | 43              | 14     |                        |        |                        |             |      |
| % prior hospitalization    |                      |                        |                 | 44                     |                    |                        |             | 67              | 48     |                        |        |                        |             |      |
| No. of prior hospital      |                      |                        |                 |                        |                    |                        |             | 3.4             | 2.4    |                        |        |                        |             |      |

Figures denote percentages of each responsibility variable.

PTFP – Pre-trial Forensic Patient

#### **APPENDIX 5: LENGTH OF CURRENT HOSPITALISATION FOR INPATIENT FORENSIC VERSUS PSYCHIATRIC AND INMATE**

|                                           | Shah et al. (1994) |                       | Pasewark et al. (1982) |        |
|-------------------------------------------|--------------------|-----------------------|------------------------|--------|
|                                           | Not Responsible    | Psychiatric Inpatient | Not Responsible        | Inmate |
| Average length of sentence (days)         | *                  |                       | 533                    | 837    |
| Better functioning (CGI)                  | 3.65*              | 4.42*                 |                        |        |
| Better personal care skills (SLOF)        | 32.5*              | 30.4*                 |                        |        |
| Better social acceptability skills (SLOF) | 32*                | 27.1*                 |                        |        |
| Interpersonal relations                   | 26                 | 25                    |                        |        |
| More dangerous                            | *                  |                       |                        |        |
| Paranoid subtype of schizophrenia         | 45*                | 18*                   |                        |        |

\* significant (p<.05)

#### **APPENDIX 6: CHANCE OF RECIDIVISM**

|                               | Hodgkins (1983)    |        | Tellefsen et al. (1992) |          | Rice & Harris (1992) |            |
|-------------------------------|--------------------|--------|-------------------------|----------|----------------------|------------|
|                               | Forensic Inpatient |        | Forensic Inpatient      |          | Forensic Inpatient   |            |
|                               | Male               | Female | Non-regional            | Regional | Schiz.               | Not Schiz. |
| % Recidivism                  | 31                 | 10     | 47                      | 63       | 35                   | 53         |
| % Rehospitalized              |                    |        | 64                      | 79       |                      |            |
| % Recidivism of violent group |                    |        |                         |          | 16                   | 24         |

Schiz. = Schizophrenic

#### **APPENDIX 7: PREDICTING REARREST & REHOSPITALISATION**

Tellefsen, Cohen, Silver, Dougherty (1992) analyzed predictive variables over a 5-year period of conditional release. What is interesting about their study is that they had two different types of samples, which produced varying results. The regional patients in USA tend to be lower functioning, and are later transferred to non-regional hospitalization before discharge. In this Maryland sample they were slightly older (33 versus 31 for the non-regionalized patients), significantly more unskilled (71% versus 47%), almost twice as many prior hospitalizations, (5.9 versus 3.1), non-significantly higher prior arrest rates (83% versus 69%), and the same severity of most serious prior arrest (Tellefsen et al., 1992). There were also statistically significant differences in the types of index offences, with both murder (4% for regionalized versus 28% for non-regionalized), and arson (with 29% for regionalized versus 6% for non-regionalized), and in diagnosis of schizophrenia (79% for regionalized versus 50% for non-regionalized). 63% of the regionalized and 53% of the non-regionalized patients were rearrested during the next 5 years, with the regionalized patients being rearrested for significantly more serious offences. Discriminant analysis yielded 5 factors that classified 74% of those rearrested and 65% of those not rearrested in the non-regionalized group: these showed that successful patients were less likely to be heroin addicts, had adjusted well in hospital, had a lower severity level of instant offence, had fewer prior arrests, and were over 35 (Tellefsen et al., 1992). Discriminant analysis in the regionalized group yielded 3 factors that correctly classified 100% of those rearrested and 89% of those not rearrested: they were less likely to be rearrested if they were under 25 or over 35, had GAF scores over 50 at time of discharge from the regional hospital, and who had been assessed by clinical staff as considerably improved (Tellefsen et al., 1992). 79% of the regionalized and 64% of the non-regionalized patients were rehospitalized. Discriminant analysis of the non-regionalized group yielded 3 factors that correctly classified 83% of those rehospitalized and 54% of those not rehospitalized: patients were less likely to be rehospitalized if they had an occupation, were functioning at a higher level before hospitalization, and between the ages of 25 and 35 (Tellefsen et al., 1992). Discriminant analysis of the regionalized group yielded 4 variables that correctly predicted 80% of patients not rehospitalized and 92% of those rehospitalized: patients not rehospitalized had successful hospital adjustments, GAF scores over 50 at discharge, had been assessed by clinical staff as considerably improved, and were between the ages of 25 and 35 (Tellefsen et al., 1992).

## **APPENDIX 8: SYNTHESIS OF THE MEGARGEE TYPOLOGIES**

|                                            | Item                                                                | Easy                                                          | Able                                                            | Baker                                                            | George                                    | Delta                                          | Jupiter                                                      | Foxtrot                                                                | Charlie                                                            | How                                                                                    |
|--------------------------------------------|---------------------------------------------------------------------|---------------------------------------------------------------|-----------------------------------------------------------------|------------------------------------------------------------------|-------------------------------------------|------------------------------------------------|--------------------------------------------------------------|------------------------------------------------------------------------|--------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| Defining clinical scales on MMPI-2         | No elevations on scales of severe pathology                         | Modest elevations on scale 3, 1 & 4.                          | Modest elevations; high points scores on 9 & 4.                 | Low profile; high points on 0,4,3 or 8.                          | Moderate elevation; elevations on 4 & 2.  | Moderate, classic 4 spike                      | Moderate; right slope, peaks on 6,7,8,9.                     | High; prominent elevations on 9,4 & 8.                                 | High; right slope, peaks on 4,6 & 8                                | High elevation                                                                         |
| Most common 2 point codes                  | 46/64 (6%)                                                          | 13 (41%), 34 (31%)                                            | 49 (73%)                                                        | 04 (25%), 47 (15%)                                               | 24 (43%); 12 (20%); 14 (18%)              | 46 (28%), 42 (21%), 49 (13%), 43 (10%)         | 89 (30%), 67 (20%), 69 (20%)                                 | 49 (67%), 48 (17%), 98 (17%)                                           | 68 (33%), 46 (19%), 48 (11%)                                       | 13 (14%), 78 (14%), 32 (12%), 86 (12%)                                                 |
| % in forensic inpatient                    | 15%                                                                 | 6%                                                            | 9%                                                              | 3%                                                               | 8%                                        | 11%                                            | 2%                                                           | 6%                                                                     | 14%                                                                | 27%                                                                                    |
| Demographics                               | Older, more married with children, no ethnic differences            | Older, more whites, more married or formerly married          | Younger, more white, single                                     | Younger, more white, more formerly married, less never married   | Much older, more whites, formerly married | Average                                        | Younger, more black, many never married                      | Younger, more blacks, more never married, low religious affiliation    | Younger, more black, more unmarried, low religious affiliation     | Mixed results on age, more black, more single or formerly married.                     |
| Institutional Adjustment                   | Good                                                                | Good                                                          | average                                                         | Average                                                          | Average                                   | Poor                                           | Mixed results                                                | Above average                                                          | Poor                                                               | Poorest                                                                                |
| Level of discipline required               | More relaxed                                                        | More relaxed                                                  | Control & structure                                             | structured                                                       | Unclear                                   | High                                           | Structure                                                    | High                                                                   | Constant monitoring                                                | Constant monitoring                                                                    |
| No. of prison incidents                    | Low                                                                 | Low                                                           | moderate                                                        | average                                                          | Average                                   | High                                           | High                                                         | High                                                                   | Above average                                                      | Highest                                                                                |
| Types of incidents                         | Nonviolent                                                          | Nonviolent, non-aggressive                                    | Above average aggression & verbal aggression                    | Nonviolent                                                       | average                                   | Disruptive                                     | Violent, aggressive                                          | More violent                                                           | Aggressive, assaultive, violent                                    | Disruptive, sometimes aggressive                                                       |
| Days in segregation                        | Low                                                                 | Low                                                           | moderate                                                        | Below average                                                    | Average                                   | High                                           | Average                                                      | High                                                                   | Above average                                                      | Highest                                                                                |
| Restrictiveness of setting                 | Not restrictive                                                     | Average                                                       | Restrictive                                                     | Restrictive                                                      | More open                                 | High safety                                    | Structure but with privacy                                   | Restrictive, high security                                             | Restrictive high security                                          | Restrictive, security                                                                  |
| Level of experience and training of agents | Low                                                                 | Low                                                           | High, need for comfort with self; aware of risk of manipulation | Awareness of social deficits. Provision of program based support | Provision of program based support        | Safety needs to be emphasized                  | Provision of program support, allowing structure and privacy | Emphasize monitoring and safety                                        | Constant monitoring and feedback to case manager                   | Need for psychological assessment; support, structure, safety.                         |
| Personality deficits                       | Not really                                                          | Not really                                                    | Not really                                                      | Not really                                                       | Some                                      | Personality Disorder                           | Unclear how severe                                           | Personality disorder, often antisocial/possible thought disturbance    | Antisocial personality/paranoid schizophrenia/paranoid personality | Personality Disorders, (often antisocial/borderline) / some are psychotic              |
| Anxiety level                              | Low                                                                 | low                                                           | Very low                                                        | Average                                                          | Above average                             | Low                                            | High                                                         | Low                                                                    | Low                                                                | High                                                                                   |
| Anger level                                | Low                                                                 | Low                                                           | Mixed results                                                   | Average                                                          | Average                                   | High                                           | Average                                                      | High                                                                   | High                                                               | High                                                                                   |
| Aggression                                 | Low                                                                 | Low for most                                                  | Mixed results                                                   | Average                                                          | Average                                   | High                                           | Average                                                      | Very high                                                              | Low                                                                | Very High                                                                              |
| No. of prior offenses                      | Low                                                                 | Few                                                           | Mixed results                                                   | Mixed results                                                    | Average                                   | Very High                                      | Quite low                                                    | Average                                                                | Very High                                                          | Mixed results                                                                          |
| Type of crimes                             | High in drug/alcohol offenses                                       | More drug offenses, less property offenses                    | Nothing in particular                                           | Mixed results                                                    | Less violence, more alcohol related       | More property & violence, less drug & traffic. | More property; otherwise Mixed results                       | Mixed results                                                          | Violent crimes against persons                                     | Violent crimes against persons, sex crimes                                             |
| MMPI-2 Content & Supplementary scales      | Low Mt, A, PK, WRK, TRT, DEP, BIZ, ANG, ASP, FAM; High O-H, Re, Do, | Low A, MAC-R, Mt, PK, ANX, OBS, DEP, BIZ, ANG, CYN, ASP, TAB, | Low A, PK, R, GF; High MAC-R, Es, Do, GM                        | Low HEA, OBS, BIZ, FAM; High Es                                  | Low MAC-R, ANG, CYN, ASP; high GF, R, Re. | Low Re, HEA, TPA, ANX, FRS, CYN.               | High A, Mt, PK, FRS, OBS, BIZ, ANX, DEP, HEA, ASP, TPA, CYN, | High MAC-R, GM, ASP, ANG, CYN, TPA, FAM, Pd1, Pd2; Low R, O-H, Re, GF, | High PK, A, Mt, MAC-R, DEP, ANG, CYN, TPA, SOD, FAM, WRK,          | High Mt, PK, R, GM, ANX, HEA, LSE, FRS, DEP, SOD, OBS, ANG, FAM, WRK, TRT; Low Es, Do, |

|                                       | Item                                                                          | Easy                                         | Able                                                | Baker                                                           | George                                              | Delta                              | Jupiter                                            | Foxtrot                                                                                  | Charlie                                            | How                                                                                       |
|---------------------------------------|-------------------------------------------------------------------------------|----------------------------------------------|-----------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------|------------------------------------|----------------------------------------------------|------------------------------------------------------------------------------------------|----------------------------------------------------|-------------------------------------------------------------------------------------------|
|                                       | GF                                                                            | LSE, FAM, WRK, TRT; High R, O-H, Do, Re, GF. |                                                     |                                                                 |                                                     |                                    | LSE, WRK, TRT; Low R, Es, GM, Do                   | FRS, SOD                                                                                 | TRT, ANX, OBS, HEA, BIZ, LSE; Low Es, Do, Re,      |                                                                                           |
| Previous psychiatric hospitalization  | Low                                                                           | Low to average                               | High (44%)                                          | Low                                                             | Low                                                 | Very low                           | High                                               | High                                                                                     | Very High                                          | High                                                                                      |
| Drug use                              | Low                                                                           | Low                                          | high                                                | Low                                                             | Low                                                 | Average                            | Average                                            | Highest                                                                                  | High                                               | High                                                                                      |
| Alcohol use                           | Low                                                                           | Mixed                                        | average                                             | High                                                            | High                                                | Low average                        | Low Average                                        | No information                                                                           | Very high                                          | Mixed results                                                                             |
| Criminally Responsible/ fit for trial | High                                                                          | No information                               | No information                                      | No information                                                  | No information                                      | Very high                          | High                                               | Low                                                                                      | No information                                     | No information                                                                            |
| Need for reassurance                  | Low                                                                           | Low                                          | Low                                                 | High                                                            | Beginning of sentence                               | Unclear                            | Emotional feedback                                 | Low                                                                                      | Unclear                                            | Emotional feedback                                                                        |
| Dominance                             | Normal                                                                        | Normal                                       | Need to dominate                                    | Unassertive, passive                                            | Less dominant                                       | Need to dominate                   | Passive, avoid hostility                           | Extremely dominant                                                                       | Withdrawn                                          | Passive, unassertive                                                                      |
| Need for separation                   | No                                                                            | No                                           | No                                                  | Remove from aggressive & social predators                       | Remove from aggressive & social predators           | Remove from less aggressive groups | No                                                 | Remove from those they might dominate                                                    | Need to protect from self and from/ for others     | Remove from aggressive & social predators                                                 |
| Family Background                     | Good                                                                          | Good                                         | Good                                                | Defensive about poor background                                 | Better than average                                 | Poor                               | Average; defended about background                 | Poor                                                                                     | Very poor                                          | Very poor                                                                                 |
| Intelligence                          | Above average                                                                 | Favorable                                    | Favorable                                           | average                                                         | Mixed results                                       | Above average                      | Mixed results                                      | Mixed results                                                                            | Low                                                | Lowest                                                                                    |
| School level                          | Above average                                                                 | Good                                         | Good                                                | Below average                                                   | Mixed results                                       | High average                       | Mixed results                                      | Average                                                                                  | Low                                                | Lowest                                                                                    |
| Employment history                    | Good                                                                          | Good                                         | Good                                                | average                                                         | Average                                             | Low average                        | Above average                                      | Below average                                                                            | Poor                                               | Very Poor                                                                                 |
| Interpersonal Relations               | Good                                                                          | Good                                         | Outgoing, social, confrontative                     | Socially constricted & withdrawn                                | Less social / outgoing, but average                 | Poor, controlling                  | Above average; avoid conflict                      | Average to below                                                                         | Very poor; social withdrawal & constriction        | Very Poor; social withdrawal/7 constriction                                               |
| Educational activities in institution | Good                                                                          | Good                                         | Good                                                | Average                                                         | Good                                                | Average                            | Poor                                               | Below average                                                                            | Very poor                                          | Very poor                                                                                 |
| Work Performance in institution       | Good                                                                          | Average                                      | Good                                                | Good                                                            | Average                                             | Poor                               | High average                                       | Poor                                                                                     | Very poor                                          | Very poor                                                                                 |
| Needs while in institution            | Continue formal education, raise level of achievement, learn skills or trades | Continue formal education                    | Continue education                                  | Educational & job training                                      | Job training & eventual job placement               | Structure                          | Programmatic support                               | Strict security and custody; possible use of narcoleptics to control antisocial behavior | Strict security, constant monitoring & feedback    | Further mental health evaluation and diagnosis; screen for malingering                    |
| Therapeutic needs                     | Enhanced self-understanding (content, rational)                               | Educational Programs                         | Not insight orientated; rather active / interactive | Supportive approach to interaction; screening for alcohol abuse | Supportive approach to help deal with incarceration | Supportive – prognosis poor        | Need for emotional feedback, structure and privacy | Behavior modification on programs with structure and strict but clear consequences       | Not receptive to formal psychological intervention | Begin with mental health problems before criminality; supportive & social skills training |
| Rearrest                              | 46%                                                                           | 36%                                          | 58%                                                 | 61%                                                             | 57%                                                 | 48%                                | 52%                                                | 60%                                                                                      | 51%                                                | 57%                                                                                       |
| Reconviction                          | 20%                                                                           | 20%                                          | 26%                                                 | 30%                                                             | 30%                                                 | 25%                                | 29%                                                | 40%                                                                                      | 24%                                                | 31%                                                                                       |
| Reincarceration                       | 20%                                                                           | 14%                                          | 29%                                                 | 26%                                                             | 28%                                                 | 28%                                | 25%                                                | 29%                                                                                      | 31%                                                | 31%                                                                                       |
| Discontinue criminal activity         | 65%                                                                           | 69%                                          | 56%                                                 | 51%                                                             | 50%                                                 | 51%                                | 54%                                                | 51%                                                                                      | 60%                                                | 51%                                                                                       |

## **APPENDIX 9: RELIABILITY AND VALIDITY OF MEGARGEE TYPOLOGIES**

### **(1) RELIABILITY OF MEGARGEE TYPOLOGY**

#### **(a) INTERRATER RELIABILITY**

Zager's (1988) literature review shows that 5 studies had addressed the issue of inter-rater reliability, with the scores for clinically classified profiles being 76%, 83% and 90%, and for computer classified profiles being 68% and 74%. Zager (1988) felt that these figure would be higher if raters followed the same method and if there were more specific guidelines for the identification of unclassified profiles. Dahlstrom, Pantan, Bain and Dahlstrom(1986) also showed that special training for clinicians was not necessary, with an inter-rater reliability rate of 90%. With the MMPI-2 most of these problems have been resolved in that the primary rules for classification clearly classify around 97% of profiles, with new guidelines also reducing the incidence of multiply classified profiles from around 24% to about 7% (Megargee et al., 2001). Although no studies have yet examined inter-rater reliability with the MMPI-2, the fact that around 90% of studies are uniquely classified should mean that reliability rates are high (Megargee et al., 2001).

#### **(b) TEST-RETEST RELIABILITY**

Several studies have looked at test-retest reliability, but many of these have had methodological errors in them including not measuring changes against outcome criterion, using small sample sizes and retesting subjects under different conditions (Zager, 1983; Zager, 1988). Dahlstrom et al., (1986) found that there were changes in profiles over time. This should be seen as positive provided the MMPI score changes are accompanied by changes in extra test variables, as people do change over time and indeed one of the goals of incarceration is behavioral and attitudinal change (Dahlstrom et al., 1986; Zager, 1988).

#### **(c ) REPLICATION**

Studies have tended to replicate the Megargee typologies (Mrad, Kabacoff, Duckro, 1983; Zager, 1988). Strong reliability was shown for Able, Charlie, Delta, Foxtrot, George, How and Item, although Easy was only identified in two samples and the smallest categories of Baker and Jupiter not at all (Zager, 1988; Megargee et al., 2001). Cluster analyses of offenders in specific crime categories have also been carried out, and as might be expected this revealed stronger identification of specific typologies. Mrad et al (1983) failed to duplicate types Baker, Easy and Jupiter, and it has been hypothesized that these may be unique to juvenile offenders (Zager, 1988). Schaffer, Pettigre, Blouin, and Edwards (1983, in Zager, 1988) managed to replicate 6 types with female offenders, with partial support for a seventh. Four studies analyzed either murderers or sex offenders in the hope of identifying violent personality types, with the types Charlie, How and Item being identified in 3 studies, Able, Delta and Foxtrot in 2 studies, and Baker and George in one study and Easy and Jupiter not being present (Megargee et al., 2001). Cluster analysis with non-criminal samples has (as expected) borne little resemblance to the Megargee Typologies (Megargee, et al., 2001).

### **(2) VALIDITY OF TYPOLOGIES**

Zager (1988) also conducted a meta analysis of studies on the Megargee typologies, looking at the characteristics of the groups. In terms of general demographic descriptors as well as clinical and criminal variables it was discovered that Easy, Able, Charlie and How, Item, Foxtrot and Jupiter were valid, with Delta lacking some of the distinctive descriptors mentioned by Megargee and colleagues (2001), and Baker and George being more inconsistent across studies (Zager, 1988). Walters, Scrapansky and Marlow (1986) discovered that Megargee Typologies could discriminate the more disturbed from the less psychologically disturbed inmates.

**APPENDIX 10: NOT RESPONSIBLE VERSUS RESPONSIBLE: DEMOGRAPHIC, CLINICAL AND CRIMINAL VARIABLES**

|                                                     | Steadman et al. (1983) | Pasewark et al. (1987) | Rogers et al. (1984) | Callahan et al. (1991) | Steadman (1980) | Janofsky et al. (1989) |
|-----------------------------------------------------|------------------------|------------------------|----------------------|------------------------|-----------------|------------------------|
| Between 25 & 39 (older)                             | yes                    | yes                    |                      | yes                    |                 | no                     |
| more Prior hospitalization or psychiatric treatment | yes                    | yes                    |                      | yes                    |                 | no                     |
| Symptoms of psychosis                               | yes                    | yes                    | yes                  | yes                    |                 | yes                    |
| Prior History of psychosis                          |                        |                        | yes                  |                        |                 |                        |
|                                                     |                        |                        |                      |                        |                 |                        |
| 12 or more years of education (better educated)     |                        | yes                    | yes                  | yes                    |                 | no                     |
| Low incidence of drug use                           |                        | yes                    |                      |                        |                 |                        |
| Pre-trial psychiatric finding                       | yes                    |                        |                      |                        |                 |                        |
| More white                                          | no                     | no                     |                      |                        | yes             | no                     |
|                                                     |                        |                        |                      |                        |                 |                        |
| Employment status/history                           |                        | no                     |                      |                        |                 | no                     |
| No. of prior arrests                                | no                     | no                     |                      |                        |                 | no                     |
| Age at 1 <sup>st</sup> arrest                       |                        | no                     |                      |                        |                 |                        |
| Severity of crime index (more violent)              | no                     | no                     |                      | yes                    |                 |                        |
| Female                                              | no                     |                        |                      | yes                    | yes             |                        |
| Single                                              |                        | no                     |                      | yes                    |                 | no                     |
| People v property                                   |                        | no                     |                      |                        |                 |                        |
| Judge rather than jury or plea bargain              |                        |                        |                      | yes                    |                 |                        |

Yes = Significant difference between responsible and not responsible

No = No significant difference between responsible and not responsible

**APPENDIX 11: DEBATE ON CONGRUENCE BETWEEN THE MMPI AND MMPI-2**

The validity in generalization of the MMPI literature to the MMPI-2 has been a contentious issue that has been chronicled in the literature. This includes a debate over the data sample of pre-trial forensic patients, and the interpretation of this data by Humphrey and Dahlstrom (1995), which is perhaps somewhat illuminating. The research here found that: (1) The average T-scores of the original MMPI were generally higher than those for the MMPI-2, which agrees with previous research (2) The raw scores of the two tests were highly stable (3) The patterning of T-scores appeared very similar on the surface. (4) With T-scores, there were some differences in high point pairs. In descending order, the scales most frequently included in a high point pair for the MMPI were scale 4, 2, 3, and then 6 and 8. For the MMPI-2 the scales most frequently included were 4, 6, 3, and then 1 and 2. The correlation of distributions for these not well defined code types (see below) was fairly low.

Factors that might lower the correlation between same person MMPI and MMPI-2 T scores profiles include (Tellegen & Ben-Porath, 1996): (1) a few differences in item content between MMPI and MMPI-2 (2) test-retest changes in response (3) change between the norms of the MMPI and MMPI-2 (4) and a fundamental difference between raw scores and the T scores of the MMPI-2 that equate the means of each clinical scale.

Some researchers have also criticized studies that use Q correlations to compare MMPI and MMPI-2 profiles, as they do not take cognizance of elevation or scatter (Ben-Porath & Tellegen, 1995; Tellegen & Ben-Porath, 1996), as well as the use of non-restrictive code-types, for similar reasons (Ben-Porath & Tellegen, 1995; Tellegen & Ben-Porath, 1996; Ladd, 1994; Graham et al., 1991). It was also shown that any raw score comparisons tend to be inflated due to substantial differences existing between raw-score means of different scales, with it being shown that even profiles of different persons can have a high correlation on raw scores (Tellegen & Ben-Porath, 1996).

It appears that the fundamental difference in contention that developed was not that there is indeed a reduction in congruence that is attributable to MMPI/MMPI-2 norm differences, but rather in the size of it and in what this infers for MMPI-2 interpretation (Tellegen & Ben-Porath, 1996). It appears that the congruence of non-restrictive code-types is too low for comparison (Humphrey and Dahlstrom, 1995; Ben-Porath & Tellegen, 1995; Dahlstrom & Humphrey, 1996; Tellegen & Ben-Porath, 1996). There is, however, substantial congruence for a large subset of MMPI-2 profiles where there are well defined code-types (Graham et al., 1991; Tellegen & Ben-Porath, 1996), and it is felt that MMPI-2 researchers should limit their MMPI based interpretations to this subset of MMPI-2 profiles (Tellegen & Ben-Porath, 1996), as well as for MMPI profiles (Tellegen & Ben-Porath, 1996).

It needs to be stressed that dependence on MMPI data is rapidly diminishing, as the database of MMPI-2 data is rapidly growing. Equally, in the areas where the MMPI and MMPI-2 do differ, it must be remembered why there was a shift to the MMPI-2, which is more likely to be correct.

## **APPENDIX 12: WELL DEFINED CODE TYPES\***

The ideal system for code types is one where they are both inclusive and homogenous (Tellegen & Ben-Porath, 1993). Well-defined code types obviously increase homogeneity while decreasing inclusiveness. In terms of homogeneity, the need to minimize assessment error through requiring code types to be narrowly defined must be weighed against the need to minimize sampling error through working with code types that are not populous enough (Tellegen & Ben-Porath, 1993). Non restrictive code types would be an example of inclusiveness, but this results in code types that are too heterogeneous, with their replicated correlate too sparse at least partly due to measurement error. This compromise between inclusiveness and homogeneity is reflected in the idea of well-defined code types (5 points between the lowest included code and the highest non included code). Some studies have taken this further by including elevation criteria (a T-score of at least 65) (Tellegen & Ben-Porath, 1993), or the creation of a within-normal-limits category (Greene, 1991, p 236). Research has in fact found that restrictive code types are relatively inclusive. Graham et al. (1991) restricted their code type definition to the scale with the lower score in the code-type, having a scale score of at least 5 T-score higher than the next highest scale, and reported that their community sample had MMPI/MMPI-2 congruence rates for men of 94.8%, 92.8% and 93.8% and for women of 96.0%, 93.4% and 93.6% for 1-, 2-, and 3-point code types. Their psychiatric sample had MMPI/MMPI-2 congruence rates for men of 83.4%, 81.6% and 75.3%, respectively, and for women of 90.6%, 94.3% and 90.9%, respectively. By restricting the congruence rates of the MMPI and the MMPI-2 these figures were increased to between 99.2% and 100% for the community sample and between 84.5% and 100% for the psychiatric sample (Graham et al., 1991). By not only using 2-point code types, but also including 1-point and 3-point code-types, Graham et al. (1991) have achieved a greater degree of inclusivity than research only using 2-point code-types (Edwards, Morrison & Weissman, 1993). Graham et al. (1991) reported that for their psychiatric sample an average of 83% of MMPI-2 profiles belong to a 1-, 2-, or 3-point code type, with the equivalent figure for their normative sample being 71%. It has been illustrated by Tellegen & Ben-Porath (1993) that by including a fourth possible classification of code-types as falling within normal limits (Greene, 1991), where all clinical scales score less than 65, the percentage of classified profiles increases to 87% in the psychiatric sample and 92% in the normative sample.

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\* the term "code-type" is beginning to replace the term "high-point pair", as there are now 1 and 3-point code types, as well as 2-point code types (see above).

**APPENDIX 13: CRIMINAL MATTERS AMENDMENT ACT 68 OF 1998**













## **APPENDIX 14: MMPI-2 SCALES**

### **(1) Validity Scales**

The MMPI-2 has 4 basic validity measures that were also present with the MMPI. They are designed to discover distortions from the true mental state, in the areas of random responding, distorting to appear less 'bad' or pathological, and distorting to appear more 'bad' or pathological.

- (a) The Cannot Say (?) scale measures the number of questions that are omitted, or where the client answers both 'true' and 'false' (Greene, 1991).
- (b) The Lie (L) scale represents the degree to which the individual is (falsely) representing himself as morally virtuous (Wright et al., 1997).
- (c) The Infrequency (F) scale represents unusual, atypical, extreme symptoms and may reflect someone genuinely struggling to cope although at very high elevations it tends to discern malingering (Wright et al., 1997).
- (d) The Defensiveness (K) scale represents the tendency of the individual to minimize the seriousness of his weakness or coping skill deficits (Wright et al., 1997).
- (e) Backpage Infrequency (Fb) scale: This measures infrequency, and is ostensibly the same as the F scale, except that all the items occur in the second half of the MMPI-2, whereas the F scale has items that are really in the first section. Infrequency of responding in the second half only would mean that the Clinical scales can still be interpreted, but not the content or supplementary scales, as they are composed of items throughout the test (Greene, 1991; Graham, 2000).
- (f) Variable Response Inconsistency (VRIN) Scale: It consists of pairs of items of similar or opposite content, to assess if the client is answering randomly (Greene, 1991; Graham, 2000).
- (g) True Response Inconsistency (TRIN) Scale: Developed to identify clients who are answering with a bias towards either acquiescence or non-acquiescence (Greene, 1991; Graham, 2000).

### **Clinical Scales**

The original labels of the clinical scales somewhat prejudicial to mental health and legal professionals alike (Wright et al., 1997). This is due to (1) the fact that the names are now extremely dated (e.g. 'hysteria') (2) the erroneous belief that the MMPI is a diagnostic instrument (e.g. That an elevated score on the 'Schizophrenia' scale implies that the patient suffers from schizophrenia'. (3) The fact that the clinical scales were derived statistically as items that correlated highly with the scale label. Thus, someone who scores highly on the 'schizophrenia' scale is merely somebody who endorses the same items as somebody suffering from schizophrenia. Obviously, this person MAY be schizophrenic, and certainly the fact that they have endorsed these items allow us to compare them to other people who endorsed similar items. But, this is not a list of items that are diagnostic of schizophrenia. The Clinical Scales are derived empirically by examining which items discriminated patients suffering from certain disorders (e.g. depression) from the general population. The scales are composed of items endorsed, for example, by a particular clinical population (e.g. "I am neither gaining nor losing weight" was endorsed by people diagnosed with a psychopathic personality, which was thus used as an item in scale 4), rather than items typically associated with a particular disorder (Butcher, Graham, Williams, Ben-Porath, 1990).

- (a) Hypochondriasis (Hs; 1): Vague and nonspecific neurotic complaints around bodily functioning (Greene, 1991).
- (b) Depression (D; 2): Symptomatic depression, which is a general measure of exogenous depression including poor morale, lack of hope in the future, general apathy, physical symptoms that include sleep disturbance and gastrointestinal complaints, and excessive sensitivity (Greene, 1991).
- (c) Hysteria (Hy; 3): Both items reflecting specific somatic complaints and items expressing whether the person considers themselves to be well socialized and adjusted, which are linked in persons with histrionic personality dynamics (Greene, 1991).
- (d) Psychopathic Deviate (Pd; 4): General social maladjustment and the absence of strongly pleasurable experiences, including views of family and authority figures, self and social alienation, boredom, denial of social shyness, and assertion of social confidence (Greene, 1991).
- (e) Masculinity-Femininity (Mf; 5): Extremely heterogeneous items including personal and emotional sensitivity, sexual identification, altruism, feminine occupation identification, and denial of masculine occupations; originally used to discriminate between soldiers and male homosexual invert (Greene, 1991).
- (f) Paranoia (Pa; 6): Includes items identifying interpersonal sensitivity, moral self-righteousness, suspiciousness, with the content of some items clearly being psychotic in nature (Greene, 1991).
- (g) Psychasthenia (Pt; 7): Items designed to assess a persons inability to resist specific actions or thoughts regardless of their nature or consequences of action, (now called Obsessive-Compulsive disorder), as well as item content around abnormal fears, self-criticism, concentration difficulties and guilt feelings (Greene, 1991).
- (h) Schizophrenia (Sc; 8): items include diverse content areas such as bizarre thought processes, peculiar perceptions, poor family relationships, social alienation, impulse control problems, difficulties

concentrating, lack of deep interests, sexual difficulties, and issues around self-worth and self-identity (Greene, 1991).

- (i) Hypomania (Ma; 9): Item content includes ego inflation, excitability, psychomotor acceleration, imperturbability, and amorality (Greene, 1991).
- (j) Social Introversion (Si; 0): Content areas tend to assess the introversion-extroversion dimension, with high scores tending to reflect areas such as shyness, self-consciousness, social avoidance, and alienation from self or others (Greene, 1991).

### Content Scales

Unlike the Clinical Scales, the Content scales had their item content identified rationally to reflect symptoms that were normally associated with a particular syndrome, before removing any items that detracted from convergent validity (Butcher, Graham, Williams, Ben-Porath, 1990). This means that the item content is far more obvious than the clinical scales, which also helps to identify those clients who are asking for help, but makes it easier to malingering on the given scale (Butcher, Graham, Williams, Ben-Porath, 1990; Graham, 2000).

- (a) Anxiety (ANX) scale: Items reflect general anxiety symptoms such as tension, somatic symptoms, sleep disturbances, worry, poor concentration, procrastination, and fear of losing one's mind (Butcher et al., 1990).
- (b) Fears (FRS) scale: Item content relates to specific rather than general fears or phobias (Butcher et al., 1990).
- (c) Obsessiveness (OBS) scale: Items relate to rumination, difficulty making decisions, avoidance of change, compulsive behavior, being overwhelmed by one's thoughts, and excessive worrying (Butcher et al., 1990).
- (d) Depression (DEP) scale: Item content includes depressive thoughts, uncertainty about the future, lack of interest or pleasure, crying, hopelessness, emptiness, suicidal thoughts or ideation, lack of self-worth, and social isolation (Butcher et al., 1990).
- (e) Health Concerns (HEA) scale: High scores reflect widespread health concerns, including gastrointestinal complaints, neurological problems, sensory problems, cardiovascular symptomatology, skin irritations, pain, and respiratory problems, and reflects widespread concern about these problems (Butcher et al., 1990).
- (f) Bizarre Mentation (BIZ) scale: Items reflect psychotic thought processes, such as auditory, visual and olfactory hallucinations, and paranoid ideation (Butcher et al., 1990).
- (g) Anger (ANG) scale: Reflects anger control problems such as irritability, grouching, impatience, hotheadedness, annoyance, stubbornness, as well as loss of behavioral control such as physical abuse (Butcher et al., 1990).
- (h) Cynicism (CYN) scale: Misanthropic beliefs such as expecting negative motives in others, and distrust of others, including those close to them (Butcher et al., 1990).
- (i) Antisocial Practices (ASP) scale: Item content reflects both misanthropic attitudes and lack of belief in lawfulness, as well as a pervasive history of deviant, problematic behaviors (Butcher et al., 1990).
- (j) Type A (TPA) scale: Item content reflects typical type A fast pace, hard working behavior, often including irritability, impatience, annoyance, and overbearing relationships.
- (k) Low Self-Esteem (LSE) scale: reflects low self-esteem, including beliefs around not being liked by others, negative attitudes about the self, and lack of self-confidence (Butcher et al., 1990).
- (l) Social Discomfort (SOD) scale: Items reflect uneasiness around others, dislike for social gatherings, and a tendency towards isolation from others (Butcher et al., 1990).
- (m) Family Problems (FAM) scale: High scores reflect considerable family problems including lack of love in the family, fights and unpleasantness, hate for family members, abuse in family history, and marital problems (Butcher et al., 1990).
- (n) Work Interference (WRK) scale: High scores reflect behaviors that tend to contribute to poor work performance, such as low self-confidence, concentration problems, obsessiveness, subjective pressure, lack of family support for career, and negative attitudes towards co-workers and authority (Butcher et al., 1990).
- (o) Negative Treatment Indicators (TRT) scale: item content includes negative attitudes towards health workers, beliefs that one cannot be understood or helped, defensiveness in discussing problems, not wanting to change, and a tendency towards giving up (Butcher et al., 1990).

### Supplementary scales

- (a) Welsh anxiety (A) scale: Measures anxiety, lack of ego resilience, and general maladjustment, including problems with thought processes, negative emotion and dysphoria, lack of energy and pessimism, personal sensitivity, and deviant thought processes (Greene, 1991).
- (b) Welsh Repression (R) scale: Denial or constriction of interests in health & physical symptoms, emotionality, violence and activity, enjoyability of social experiences, social dominance and personal adequacy and appearance, and interest in personal and vocational pursuits (Greene, 1991).
- (c) Ego Strength (Es) scale: Looks at ego strength, or psychological resources of the client, and tends to imply a lack of serious characterological maladjustment (Greene, 1991; Graham, 2000).
- (d) MacAndrew Alcoholism (MAC-R) scale, revised: Identifies the possibility of alcohol or other substance abuse, as well as more general patterns of psychological maladjustment and acting out behavior, as well as antisociality (Megargee et al, 2001; Graham, 2000; Greene, 1991).

- (e) Over-controlled Hostility (O-H) Scale: Measures degree of control over hostility, with the theory being that extremely assaultive individuals generally display low levels of normally expressed hostility and over-controlled impulses, with rigid defenses against expression of aggression (Megargee et al., 1966; 1967; Graham, 2000; Greene, 1991).
- (f) Dominance (Do) scale: Identifies people who are self – assured, secure, confident, optimistic, efficient, are persevering, able to handle problems and conflict, are comfortable in social situations, and tend to have little overt psychiatric symptomatology (Graham, 2000).
- (g) Social Responsibility (Re) scale: Item content includes responsibility in the sense of a willingness to take responsibility for own behavior, integrity, dependability, trustworthiness, and a sense of obligation to the group (Greene, 1991; Graham, 2000).
- (h) College Maladjustment (Mt) scale: Item content designed to discriminate between emotional adjustment of college students, which lends itself to a general lack of ability to adjust to situations, as well as ineffectuality, pessimism, procrastination, anxiety and worry, somatic symptoms, and strain (Graham, 2000).
- (i) Masculine Gender Role (GM) scale: Endorsement of items reflects degree to which client conforms to a masculine stereotype (Greene, 1991; Graham, 2000).
- (j) Feminine Gender Role (GF) scale: Endorsement of items reflects degree to which client conforms to a feminine stereotype (Greene, 1991; Graham, 2000).
- (k) Post Traumatic Stress Disorder (PK) Scale: Items are associated with post traumatic stress disorder, as well as indicating persons with problems of intense emotional distress, feelings of anxiety and sleep disturbance, guilt and depression, have unwanted and disturbing thoughts, fear loss of control, and feel misunderstood and badly treated (Graham, 2000).
- (l) Post Traumatic Stress Disorder (PS) Scale: Shares a high item overlap with the PK scale, and the same caution has been given regarding both scales regarding using them for strict diagnostic purposes, as they are highly correlated with general maladjustment and emotional distress (Greene, 1991).
- (m) Marital Distress (MDS) scale: High scores suggest distress in marriages or other intimate relationships, and may also reflect depression and suicidal ideation, negative feelings about self and life, anger, and an objective or subjective feeling of a lack of friends (Graham, 2000).
- (n) Addiction Potential (APS) scale: Designed to reflect substance abuse, with heterogeneous content so that it isn't too easily malingered, and thus also reflecting histories of acting out behavior, impulsivity, anger argumentativeness and aggression, family problems, possible suicide attempts, moodiness, together with suspicion and difficulty trusting others.

## **APPENDIX 15: ON BIAS IN INVENTORIES: WHY THEY MUST PREDICT EXTRA-TEST CORRELATES EQUALLY WELL**

To begin with it is important to make the distinction between test correlates and extra test variables. This is important, because if two ethnic groups score significantly differently on an inventory this does not necessarily imply the inventory is biased against one group (Graham, 2000). It is still ethnically valid as long as the scores obtained accurately predict extra-test variables. Equally, just because there is no significant difference in scores between two ethnic groups does not mean that the inventory is culturally fair, which it would only be in this case if the extra-test correlates for the two groups are equal (Timbrook & Graham, 1994).

In the Epidemiological Catchment Area Project in U.S.A. (Hall, Bansal, & Lopez, 1999) African Americans have only been shown to have significantly greater lifetime prevalence than European Americans of simple phobia, agoraphobia and cognitive impairment with no significant differences in other disorders. The National Comorbidity Survey had similar overall findings, with no differences between African and Caucasian Americans except for a significantly higher prevalence of drug abuse, and major depression amongst European Americans (Hall, Bansal, & Lopez, 1999).

Problems with extra test measurements to compare the MMPI-2 against is that these still have to be measured in some way. The MMPI-2 is one of the best researched and most reliable tests, and it is difficult to find more reliable measures from other objective inventories to compare it against (Hall, Bansal, & Lopez, 1999). Equally, more subjective measures such as clinical judgments have been shown for some diagnoses not to be culturally fair regarding certain minority or less empowered groups such as Africans or females (Gynther, 1989; Hall, Bansal, Lopez, 1999).

Most studies using minority groups tend to get their samples through institutions, which may also create a bias as many of these minority group individuals might be more disidentified with their culture than the average member (Hall, Bansal, & Lopez, 1999). It also needs to be mentioned that even if there are shown to be a lack of ethnic differences in psychopathology, this does not mean that the test shows equal levels of coping, as it might be argued that previously disadvantaged groups are engaged in additional coping with stressors that are not faced by the more advantaged groups (e.g. discrimination).

## APPENDIX 16: CLASSIFICATION OF CASES INTO TYPOLOGIES

|    | Able | Baker | Charlie | Delta | Easy | Foxtrot | George | How  | Item | Jupiter | Final Class. |
|----|------|-------|---------|-------|------|---------|--------|------|------|---------|--------------|
| 1  | X    | X     | High    | X     | X    | X       | X      | Med  | X    | X       | CHARLIE      |
| 2  |      |       |         |       |      |         |        |      |      |         |              |
| 3  | X    | X     | Med     | X     | X    | X       | X      | Med  | X    | X       | CHARLIE      |
| 4  | X    | X     | X       | X     | X    | X       | X      | Med  | X    | X       | HOW          |
| 5  |      |       |         |       |      |         |        |      |      |         |              |
| 6  | X    | X     | Med     | X     | X    | X       | X      | Med  | X    | X       | HOW          |
| 7  | X    | X     | X       | X     | X    | X       | X      | Med  | X    | X       | HOW          |
| 8  |      |       |         |       |      |         |        |      |      |         |              |
| 9  | X    | X     | X       | X     | X    | X       | X      | Med  | X    | X       | HOW          |
| 10 |      |       |         |       |      |         |        |      |      |         |              |
| 11 | X    | X     | Med     | X     | X    | X       | X      | X    | X    | X       | CHARLIE      |
| 12 | X    | X     | X       | X     | X    | X       | X      | High | X    | X       | HOW          |
| 13 | X    | X     | X       | X     | X    | X       | X      | Med  | X    | X       | HOW          |
| 14 | X    | X     | X       | X     | X    | X       | X      | X    | Low  |         | ITEM         |
| 15 | X    | X     | X       | X     | X    | X       | X      | Med  | X    | X       | HOW          |
| 16 | X    | X     | X       | X     | X    | X       | X      | High | X    | X       | HOW          |
| 17 | X    | X     | X       | X     | X    | X       | X      | Med  | X    | X       | HOW          |
| 18 |      |       |         |       |      |         |        |      |      |         |              |
| 19 | X    | X     | X       | X     | X    | X       | X      | Med  | X    | X       | HOW          |
| 20 |      |       |         |       |      |         |        |      |      |         |              |
| 21 | X    | X     | Med     | X     | X    | X       | X      | Med  | X    |         | HOW          |
| 22 | X    | X     | High    | X     | X    | X       | X      | Med  | X    | X       | CHARLIE      |
| 23 | X    | X     | X       | X     | Low  | X       | High   | X    | Med  | X       | GEORGE       |
| 24 | X    | X     | Low     | X     | X    | X       | X      | X    | X    | High    | JUPITER      |
| 25 | X    | Med   | X       | X     | Low  | X       | Med    | X    | Med  |         | BAKER        |
| 26 | X    | X     | X       | X     | Med  | X       | X      | X    | Med  |         | ITEM         |
| 27 | X    | X     | Med     | X     | X    | X       | X      | Med  | X    | X       | HOW          |
| 28 | X    | X     | Med     | X     | X    | X       | X      | Med  | X    | X       | HOW          |
| 29 | X    | X     | X       | X     | X    | X       | X      | Med  | X    | X       | HOW          |
| 30 | X    | X     | X       | X     | X    | X       | X      | X    | X    |         | UNCLASS.     |
| 31 | X    | X     | X       | X     | X    | X       | X      | Med  | X    | X       | HOW          |
| 32 | X    | X     | Low     | X     | X    | High    | X      | X    | X    | Med     | FOXTROT      |
| 33 |      |       |         |       |      |         |        |      |      |         |              |
| 34 |      |       |         |       |      |         |        |      |      |         |              |
| 35 | X    | X     | Low     | X     | X    | X       | X      | Med  | X    | X       | HOW          |
| 36 | X    | X     | X       | X     | X    | X       | X      | Low  | X    | X       | HOW          |
| 37 | X    | X     | X       | X     | X    | X       | X      | Med  | X    | X       | HOW          |
| 38 | X    | X     | Min     | X     | X    | X       | X      | High | X    | X       | HOW          |
| 39 | X    | X     | X       | High  | X    | X       | X      | X    | X    | X       | DELTA        |
| 40 | X    | X     | X       | X     | Med  | X       | Med    | X    | Med  |         | GEORGE       |
| 41 | X    | X     | X       | X     | X    | X       | X      | High | X    | X       | HOW          |
| 42 | X    | X     | X       | X     | X    | X       | X      | Med  | X    | X       | HOW          |
| 43 | X    | X     | X       | X     | X    | X       | X      | Med  | X    | X       | HOW          |
| 44 | X    | X     | X       | X     | Med  | X       | High   | X    | Med  | X       | GEORGE       |
| 45 | X    | X     | X       | X     | X    | X       | X      | Med  | X    |         | HOW          |
| 46 | X    | X     | High    | X     | X    | X       | X      | Med  | X    |         | CHARLIE      |
| 47 | Med  | X     | X       | X     | X    | High    | X      | X    | X    | Med     | FOXTROT      |
| 48 | X    | X     | X       | X     | X    | X       | X      | Med  | X    | X       | HOW          |
| 49 | X    | X     | X       | X     | X    | X       | Min    | X    | Med  |         | ITEM         |
| 50 | X    | X     | X       | X     | X    | X       | X      | Med  | X    |         | HOW          |
| 51 | Med  | Med   | X       | X     | X    | X       | Med    | X    | Med  | X       | ABLE         |
| 52 | X    | X     | X       | X     | X    | X       | X      | High | X    |         | HOW          |
| 53 | X    | X     | X       | X     | X    | X       | X      | Med  | X    |         | HOW          |
| 54 | X    | X     | X       | X     | X    | X       | X      | X    | X    |         | UNCLASS.     |
| 55 | X    | X     | Med     | X     | X    | X       | X      | Low  | X    | X       | CHARLIE      |
| 56 | X    | X     | X       | X     | X    | X       | X      | X    | Med  |         | ITEM         |
| 57 | X    | X     | Med     | X     | X    | X       | X      | X    | X    | X       | CHARLIE      |
| 58 | X    | X     | X       | X     | X    | X       | X      | High | X    |         | HOW          |
| 59 | X    | X     | X       | X     | Med  | X       | X      | X    | X    | X       | EASY         |
| 60 | X    | X     | X       | X     | X    | X       | X      | Med  | X    | X       | HOW          |
| 61 | X    | X     | X       | X     | X    | X       | X      | High | X    | X       | HOW          |
| 62 | X    | X     | X       | X     | X    | X       | X      | High | X    | X       | HOW          |
| 63 | Low  | X     | X       | High  | X    | X       | Med    | X    | X    | X       | DELTA        |
| 64 | X    | X     | X       | X     | X    | X       | X      | Med  | X    | X       | HOW          |
| 65 | X    | X     | X       | X     | X    | X       | X      | Med  | X    |         | HOW          |
| 66 | X    | Med   | X       | X     | X    | Med     | X      | X    | Low  | X       | BAKER        |
| 67 | X    | X     | X       | X     | X    | X       | X      | Med  | X    |         | HOW          |
| 68 | X    | X     | X       | X     | X    | X       | X      | Med  | X    | X       | HOW          |
| 69 | X    | X     | Med     | X     | X    | X       | X      | Med  | X    | X       | HOW          |
| 70 | X    | X     | X       | X     | X    | X       | X      | Med  | X    | X       | HOW          |
| 71 | X    | X     | High    | X     | X    | X       | X      | Med  | X    | X       | CHARLIE      |
| 72 | X    | X     | X       | X     | X    | X       | X      | High | X    | X       | CHARLIE      |
| 73 | High | X     | X       | X     | X    | High    | X      | X    | Med  | X       | FOXTROT      |
| 74 |      |       |         |       |      |         |        |      |      |         |              |
| 75 | X    | X     | Low     | X     | X    | X       | X      | High | X    | X       | HOW          |
| 76 | X    | X     | X       | X     | X    | X       | X      | Med  | X    | X       | HOW          |

|    |   |   |      |   |   |     |     |      |     |     |          |
|----|---|---|------|---|---|-----|-----|------|-----|-----|----------|
| 77 | X | X | X    | X | X | X   | X   | Med  | X   | X   | HOW      |
| 78 | X | X | Low  | X | X | X   | X   | High | X   |     | HOW      |
| 79 |   |   |      |   |   |     |     |      |     |     |          |
| 80 | X | X | X    | X | X | X   | X   | X    | Med | X   | ITEM     |
| 81 | X | X | High | X | X | X   | X   | Med  | X   | X   | CHARLIE  |
| 82 |   |   |      |   |   |     |     |      |     |     |          |
| 83 | X | X | X    | X | X | X   | X   | Med  | X   | X   | HOW      |
| 84 |   |   |      |   |   |     |     |      |     |     |          |
| 85 | X | X | Med  | X | X | X   | X   | X    | X   | Med | CHARLIE  |
| 86 |   |   |      |   |   |     |     |      |     |     |          |
| 87 | X | X | X    | X | X | X   | X   | High | X   | X   | HOW      |
| 88 | X | X | X    | X | X | X   | X   | Med  | X   | X   | HOW      |
| 89 | X | X | X    | X | X | X   | X   | X    | X   | X   | UNCLASS. |
| 90 | X | X | Med  | X | X | X   | X   | Med  | X   | X   | HOW      |
| 91 |   |   |      |   |   |     |     |      |     |     |          |
| 92 | X | X | Med  | X | X | X   | X   | High | X   | X   | CHARLIE  |
| 93 | X | X | Low  | X | X | Low | Med | Med  | X   |     | HOW      |
| 94 |   |   |      |   |   |     |     |      |     |     |          |

Columns denote Megargee Typologies.

Final Class. = Final classification of case

Rows denote individual cases in sample (cases are empty where the MMPI-2 profile were invalid).

X = not classifiable as the typology in question; Min = minimally classifiable; Low = classifiable at a low level; Med = classifiable at a medium level and High = classifiable at a high level.

UNCLASS. = not classifiable as any typology.

## **APPENDIX 17: ACCURACY OF FINAL TYPOLOGICAL CLASSIFICATION**

### **PREDICTIVE VALIDITY OF TYPOLOGY**

| Unclassifiable | Minimum | Low | Medium | High | Total |
|----------------|---------|-----|--------|------|-------|
| 3              | 0       | 2   | 48     | 26   | 79    |

### **DISCRIMINATIVE VALIDITY OF TYPOLOGY**

| Unclassifiable | Primary Rules | Secondary Rules | Tie Breaks | Total |
|----------------|---------------|-----------------|------------|-------|
| 3              | 43            | 18              | 15         | 79    |

## APPENDIX 18: APPLICATION TO THE COMMITTEE FOR RESEARCH ON HUMAN SUBJECTS (MEDICAL)



**FORM CRHS (2002)**

**UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG**

**APPLICATION<sup>1</sup> TO THE COMMITTEE FOR RESEARCH ON HUMAN SUBJECTS (MEDICAL) FOR CLEARANCE OF RESEARCH INVOLVING HUMAN SUBJECTS, OR PATIENT RECORDS.**

☐ **CLEARANCE NUMBER (for office use only):** \_\_\_\_\_

**This application must be typed or handwritten in capitals**

**RHODES UNIVERSITY PSYCHOLOGY DEPARTMENT**

**AL LAST YEAR)**

**FULL TIME**

**IX: (021) 7945597**

**TITLE OF RESEARCH PROJECT: (Use no abbreviations)**

**RESPONSIBLE VERSUS NOT RESPONSIBLE: AN INVESTIGATION OF DISCRIMINANT VALIDITY OF THE MMPI-2 IN A SOUTH AFRICAN FORENSIC SETTING.**

**WHERE WILL THE RESEARCH BE CARRIED OUT? (Please furnish name of hospital/institution and particular department)**

**STERKFRONTIN HOSPITAL, FORENSIC WARD**

**All the following sections must be completed<sup>3</sup>. Please tick all relevant boxes.**

**PURPOSE OF THE RESEARCH:**

postgraduate: degree/diploma (state which) ☒

not for degree purposes ☐

**OBJECTIVES OF THE RESEARCH (please list):**

TO ILLUMINATE THE KINDS OF PROFILES THAT S.A. FORENSIC SAMPLES HAVE

TO ANALYSE THE DEMOGRAPHIC, CLINICAL, CRIMINAL AND PERSONALITY CHARACTERISTICS MOST

**USEFUL IN DISCRIMINATING BETWEEN THOSE FOUND TO BE LEGALLY RESPONSIBLE VERSUS LEGALLY NOT RESPONSIBLE FOR THEIR ACTIONS**

TO BEGIN TO CREATE MMPI-2 NORMS FOR S.A. FORENSIC PATIENTS

TO ESTABLISH A MORE OBJECTIVE PROTOCOL ON HOW TO USE THE MMPI-2

TO CONTRIBUTE TO A BETTER UNDERSTANDING OF THE PERSONALITY PROFILES OF S.A. FORENSIC

**POPULATIONS**

CLASSIFICATION OF FORENSIC PATIENTS INTO DIFFERENT PERSONALITY TYPOLOGIES, WHICH WILL HELP

**NOT ONLY WITH PLACEMENT, BUT ALSO COULD HELP INTEGRATE INTERNATIONAL RESEARCH TO INFLUENCE TREATMENT / REHABILITATION PROGRAMS.**

Unless received by the 7<sup>th</sup> of the month, applications will be carried over to the next month for consideration.

If not employed by the University or one of the University's teaching hospitals, please indicate clearly where correspondence should be sent.

This requirement holds even if, to assist the Committee, a protocol detailing the background to the research, the design of the investigation and all procedures, is submitted with the application.

**SUMMARY OF THE RESEARCH (give a brief outline of the research plan):**

DEMOGRAPHIC, CLINICAL, CRIMINAL AND MMPI-2 DATA WILL BE COLLECTED FROM STERKFRONTIN HOSPITAL ON ALL PRETRIAL EVALUATION FORENSIC PATIENTS WHO WERE ADMINISTERED THE MMPI-2. THE FOLLOWING RESEARCH QUESTIONS WILL BE ADDRESSED: 1) WHICH, IF ANY, DEMOGRAPHIC CHARACTERISTICS DIFFERENTIATE BETWEEN PATIENTS IN FORENSIC SETTINGS WHO ARE FOUND RESPONSIBLE AND NOT RESPONSIBLE? 2) DOES THE MMPI-2 DISCRIMINATE ADEQUATELY BETWEEN PATIENTS IN FORENSIC SETTINGS WHO ARE FOUND RESPONSIBLE AND NOT RESPONSIBLE? 3) WHICH SCALES OR PROFILE CLUSTERS IN THE MMPI-2 BEST DIFFERENTIATE BETWEEN FORENSIC PATIENTS WHO ARE FOUND RESPONSIBLE AND NOT RESPONSIBLE?

**REQUIREMENTS**

4.1 If radiation or isotopes are to be used, written approval must be obtained from the Nuclear Medicine Department, Diagnostic Radiology Department, Radiation Therapy Department or NUCOR representative.

**Is this attached? If not, the application cannot be considered.**

Yes ☐ No ☐

**NOT APPLICABLE**

**4.2 Subject Information Sheet<sup>5</sup> is attached. (For written and verbal consent)**  
Yes ☐ No ☐  
**Informed Consent Form<sup>6</sup> is attached. (For written consent).**  
Yes ☐ No ☐

NOT APPLICABLE: ALL DATA COLLECTED WILL BE ARCHIVAL AND

**If a questionnaire or interview is to be used in the research, it must be attached.**

NOT APPLICABLE

**SUBJECTS FOR STUDY**  
**5.1 If patients are being studied, state where and how the subjects are selected:**  
**ALL ARCHIVAL RECORDS WHERE THE MMPI-2 WAS USED WILL BE COLLECTED.**  
**Where the subjects are not patients, they will be asked to volunteer ☐ they will be selected ☐**  
**State how the subjects are selected, or who is asked to volunteer:**

**If yes, justify the selection of subordinate subjects:** NOT APPLICABLE

**4. NB. If any doubt exists, please contact Ms Anisa Keshav, Room 10005, 10<sup>th</sup> Floor, Senate House, Wits University, 717-1234**  
Whether written or verbal consent is to be obtained, the CRHS requires a Subject information sheet written in language understandable to the subject (or guardian) detailing what the subject will be told. This should include the following: (1) investigator introduction; (2) participation is voluntary, and refusal to participate will involve no penalty or loss of benefits to which the subject is otherwise entitled; (3) the subject may discontinue participation at any time without penalty or loss of benefits; (4) a brief description of the research, its duration, procedures and what the subject may expect and/or be expected to do; (5) any foreseeable risks, discomforts, side-effects or benefits, including those for placebo; and (6) disclosure of alternatives available to the subject. If risks are involved: (7) a professional contact and 24 hour telephone number; (8) an explanation whether medical treatment will be provided in the case of a complication developing; (9) a separate Patient Information and Informed Consent sheet for blood / tissue samples taken for future testing. This Subject Information Sheet may be incorporated into the consent form, or the consent form may be submitted separately.  
The Informed Consent Form should include a clear statement that the subject is consenting to involvement in research and not to treatment which will necessarily provide personal benefit. Any personal benefit should be mentioned where this is possible. An important piece of information is that the subject is free to withdraw from the trial at any time without prejudicing any treatment that is required for existing or future medical conditions. If this is not made clear, the researcher risks the accusation that consent was obtained by subtle coercion (that is, the possibility of prejudice against the subject as a current or future patient).

**5.3 Will control subjects be used? If yes, explain how they will be recruited:** Yes ☐ No ☐  
NOT APPLICABLE  
**Subject records: state what records will be used and how they will be selected:**  
**SUBJECTS RECORDS WILL BE UTILISED. IT WILL BE NECESSARY TO COLLECT THE FOLLOWING:**  
**MMPI-2 RAW DATA (I.E. THE ORIGINAL RESPONSES TO THE 567 QUESTIONS. THESE ARE ALL**  
**DICHOTOMOUS YES/NO RESPONSES)**  
**CLINICAL DATA ( INCLUDING VARIABLES SUCH AS DIAGNOSIS, PREVIOUS HOSPITALISATION ETC.)**  
**CRIMINAL DATA (INCLUDING INSTANT OFFENSE, PRIOR HISTORY OF ARRESTS ETC.)**  
**DEMOGRAPHIC DATA (INCLUDING AGE, GENDER, MARITAL STATUS ETC. HOWEVER, THE NAMES OF THE**  
**PATIENTS ARE NOT REQUIRED, AND WILL NOT BE REMOVED FROM THE FORENSIC WARD IN ANY FORMAT.**  
**EQUALLY, THIS IS A STATISTICAL ANALYSIS, WHICH WILL NOT BE ANALYSING INDIVIDUAL PROFILES).**  
**Age range of patients/subjects/controls:**  
**If under 18 years, from whom will consent be obtained?**  
**If under 18 years, is a patient assent form attached?**  
**OVER 18**  
5.6 Sex: Male ☒ Female ☒  
5.7 Number of patients ..... ; non-patient subjects ..... ; controls .....

**ESTIMATE OF 100 (STERKFONTEIN IS UNCLEAR AS TO EXACTLY HOW MANY FORENSIC EVALUATION RECORDS**  
**THERE ARE WHERE THE MMPI-2 HAS BEEN USED (SINCE ABOUT 1995)**  
**Benefit to patient or subjects: will the research benefit the patient(s) or subject(s) in any direct way.**  
Yes ☐ No ☐  
**If yes, explain in what way**  
**THIS IS A RETROSPECTIVE ARCHIVAL STUDY, BUT IT IS LIKELY TO BENEFIT FUTURE PATIENTS AS WELL AS**  
**SOCIETY THROUGH POTENTIAL BETTER FORENSIC EVALUATION, PLACEMENT AND TREATMENT.**  
**Disadvantages to patients/subjects/controls. Will participation or non-participation disadvantage them in any way?**  
Yes ☐ No ☐  
**If yes, explain in what way** NOT APPLICABLE

**PROCEDURES**  
**Mark research procedure(s) that will be used:**  
☒ Record review  
☐ Interview form (must be attached)  
☐ Questionnaire (must be attached)

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |              |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| <input type="checkbox"/> Examination (state below nature and frequency of examination)<br><br><input type="checkbox"/> Substance administration (state below name(s) of<br>and dose(s) and frequency of administration)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | substance(s) |
| <input type="checkbox"/> X-rays<br><br><input type="checkbox"/> Isotope administration (state below name(s) of isotope(s) and frequency)<br><br><input type="checkbox"/> Blood sampling; <input type="checkbox"/> venous; <input type="checkbox"/> arterial (state below amount to be taken                      and the frequency of blood sampling)<br><br><input type="checkbox"/> Biopsy<br><br><input type="checkbox"/> Other procedures (explain)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |              |
| Use this space to elaborate procedures marked above:<br>SEE ABOVE<br>Is/are procedure(s) routine for diagnosis/management? <input type="checkbox"/><br>Specific to research? <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |              |
| NOT APPLICABLE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |              |
| Who will carry out the procedure(s)? (State name(s) and position(s) held)?<br>MR EMILE MURRAY DU TOIT (CLINICAL PSYCHOLOGIST IN TRAINING)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |              |
| When will the research commence, and over what approximate time period will the research be conducted?<br>I WILL STILL NEED TO ARRANGE THIS WITH DR. CONRAD VISSER, ONCE I HAVE PERMISSION FROM THE ETHICS COMMITTEE, BUT HOPEFULLY DURING THE WEEK OF 4-8 OF NOVEMBER.(PROBABLY TAKE AROUND THREE DAYS)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |              |
| RISKS OF THE PROCEDURE(S) subjects/controls will suffer:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |              |
| <div style="display: flex; justify-content: space-between;"> <span><input checked="" type="checkbox"/> No risk</span> <span><input type="checkbox"/> Discomfort</span> </div> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <span><input type="checkbox"/> Pain</span> <span><input type="checkbox"/> Possible complications</span> </div> <div style="margin-top: 5px;"> <input type="checkbox"/> Side effects from agents used       </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |              |
| If you have checked any of the above except "No risk" provide details here:<br>GENERAL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |              |
| State name of authority/ies:<br>(1) RHODES PSYCHOLOGY DEPT. DISSERTATION ETHICS COMMITTEE<br>(2) STERKFORTEIN HOSPITAL IS SATISFIED, BUT AWAITS THE DECISION OF THE CHRHS.<br>Confidentiality: how will confidentiality be maintained so that patients/ subjects/controls are not identifiable to persons not involved in the research?<br>NAMES OF PATIENTS OR ANY OTHER IDIOSYNCRATIC READILY IDENTIFIABLE DATA WILL NOT BE USED.<br>INDIVIDUAL PROFILES WILL NOT BE ANALYSED.<br>Results: to whom will result be made available?<br>RESULTS WILL BE CONTAINED IN A M.A. DISSERTATION, AND POSSIBLY IN SUBSEQUENT JOURNAL ARTICLES.<br>Finances. There will be financial costs to:<br><div style="display: flex; justify-content: space-between; margin-top: 5px;"> <span>Yes <input type="checkbox"/></span> <span>No <input checked="" type="checkbox"/></span> </div> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <span>Yes <input type="checkbox"/></span> <span>No <input checked="" type="checkbox"/></span> </div> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <span>Yes <input checked="" type="checkbox"/></span> <span>No <input type="checkbox"/></span> </div> |              |
| Explain any box marked "yes":<br>MR EMILE DU TOIT WILL PAY COSTS FOR PHOTOSTATTING OF MMPI-2 RAW DATA RECORDS.<br>How will the research be funded?<br>PRIVATELY (MR EMILE DU TOIT)<br>Any other information which may be of value to the committee should be provided here:<br>DATA NEEDS TO BE COLLECTED URGENTLY. THUS IT IS RESPECTFULLY REQUESTED THAT DATA CAN BE COLLECTED IMMEDIATELY, WITH THE PROVISIO THAT IT WILL NOT BE UTILISED IN ANY WAY IF LATER PERMISSION TO COLLECT AND UTILISE DATA IS NOT FORTHCOMING FROM THE CRHS.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |              |
| Applicant's Signature:<br>Who will supervise the project?<br>)<br>T)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |              |
| Date                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Signature    |
| Head/Research Coordinator of Department/Institute in which study was conducted:<br>DR CONRAD VISSER (PSYCHIATRIST AT STERKFORTEIN )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |              |

## **APPENDIX 19: CODING OF DEMOGRAPHIC AND CLINICAL VARIABLES USED IN DISCRIMINANT ANALYSIS**

- (1) Employment status was a categorical variable coded as either unemployed (0) or employed (1), where unemployment was seen as being currently unemployed for more than 3 months, or being unemployed for the majority of time in the last 2 years. Status as a student classified as being employed.
- (2) Diagnosis was a categorical variable coded as having received no diagnosis (0), a diagnosis that was not of psychosis (1), and a diagnosis of a major psychotic illness (2).
- (3) Race was a categorical variable coded as white (0), or other than white (1).
- (4) Psychiatric History was a categorical variable coded as absence of a psychiatric history (0), or presence of a psychiatric history (1). It must be emphasized here that this is based on Sterkfontein Hospital records, and may not always be an accurate representation of the presence of a history of psychiatric problems. A psychiatric history was coded where there had been at least one inpatient admission to a psychiatric hospital or drug/alcohol clinic, or where the patient had received ongoing (more than one session) of psychological or psychiatric intervention prior to the index offense.
- (5) Substance abuse/dependence was a categorical variable coded based on absence of recorded substance abuse/dependence (0), presence of recorded alcohol, marijuana, or other substances regarded as moderately severe (1), or abuse/dependence on extremely severe substances such as heroin, mandrax, crack or cocaine (2).
- (6) Psychosis was categorical variable coded on the absence (0) or presence (1) of psychosis at the time of the 30-day observation.
- (7) Age was left as a continuous variable.

## **APPENDIX 20: HIGH POINT PAIRS OF PRE-TRIAL FORENSIC SAMPLE (ONLY WELL-DEFINED AND ELEVATED)**

| Code-type        | Frequency |
|------------------|-----------|
| Not well-defined | 5         |
| 1                | 1         |
| 1-2              | 1         |
| 1-2-3            | 1         |
| 1-3              | 1         |
| 1-4-8            | 1         |
| 2                | 4         |
| 2-4              | 1         |
| 2-4-6            | 1         |
| 2-6              | 2         |
| 2-6-8            | 2         |
| 2-7              | 1         |
| 2-7-8            | 1         |
| 2-8              | 3         |
| 2-10             | 1         |
| 3                | 1         |
| 4                | 3         |
| 4-5-6            | 1         |
| 4-6              | 6         |
| 4-7-8            | 1         |
| 4-8              | 1         |
| 4-8-9            | 1         |
| 5                | 2         |
| 5-8              | 1         |
| 6                | 5         |
| 6-7              | 1         |
| 6-7-8            | 2         |
| 6-8              | 10        |
| 6-8-9            | 1         |
| 6-9              | 2         |
| 6-10             | 1         |
| 7-8              | 1         |
| 7-8-9            | 1         |
| 8                | 1         |
| 8-9              | 1         |
| 9                | 3         |
| 9-10             | 1         |
| Unclassifiable   | 6         |

### APPENDIX 21: FREQUENCY OF MMPI-2 SCORES OVER 65T OR UNDER 40T

| SCALE | CR     |       |        |       | DCR    |    |        |    | NCR    |       |        |       | Total  |       |        |       |
|-------|--------|-------|--------|-------|--------|----|--------|----|--------|-------|--------|-------|--------|-------|--------|-------|
|       | 40 ≥ T |       | T ≥ 65 |       | 40 ≥ T |    | T ≥ 65 |    | 40 ≥ T |       | T ≥ 65 |       | 40 ≥ T |       | T ≥ 65 |       |
|       | No.    | %     | No.    | %     | No.    | %  | No.    | %  | No.    | %     | No.    | %     | No.    | %     | No.    | %     |
| L     | 2      | 4.17  | 18     | 37.5  | 0      | 0  | 5      | 50 | 0      | 0     | 10     | 47.62 | 2      | 2.53  | 33     | 41.77 |
| F     | 1      | 2.08  | 33     | 68.75 | 1      | 10 | 7      | 70 | 0      | 0     | 17     | 80.95 | 2      | 2.53  | 57     | 72.15 |
| K     | 24     | 50    | 5      | 10.42 | 5      | 50 | 1      | 10 | 7      | 33.33 | 1      | 4.76  | 36     | 45.57 | 7      | 8.86  |
| Hs    | 5      | 10.42 | 30     | 62.50 | 0      | 0  | 4      | 40 | 2      | 9.52  | 12     | 57.14 | 7      | 8.86  | 46     | 58.23 |
| D     | 1      | 2.08  | 31     | 64.58 | 0      | 0  | 8      | 80 | 3      | 14.29 | 14     | 66.66 | 4      | 5.06  | 53     | 67.09 |
| Hy    | 5      | 10.42 | 23     | 47.92 | 0      | 0  | 4      | 40 | 2      | 9.52  | 6      | 28.57 | 7      | 8.86  | 33     | 41.77 |
| Pd    | 0      | 0     | 28     | 58.33 | 0      | 0  | 6      | 60 | 1      | 4.76  | 8      | 38.10 | 1      | 1.27  | 42     | 53.16 |
| Mf    | 3      | 6.25  | 11     | 22.92 | 1      | 10 | 3      | 30 | 2      | 9.52  | 3      | 14.29 | 6      | 7.59  | 17     | 21.52 |
| Pa    | 1      | 2.08  | 34     | 70.83 | 0      | 0  | 8      | 80 | 0      | 0     | 14     | 66.66 | 1      | 1.27  | 56     | 70.89 |
| Pt    | 1      | 2.08  | 33     | 68.75 | 0      | 0  | 7      | 70 | 1      | 4.76  | 13     | 61.90 | 2      | 2.53  | 53     | 67.09 |
| Sc    | 1      | 2.08  | 40     | 83.33 | 1      | 10 | 7      | 70 | 0      | 0     | 17     | 80.95 | 2      | 2.53  | 64     | 81.01 |
| Ma    | 1      | 2.08  | 15     | 31.25 | 0      | 0  | 1      | 10 | 2      | 9.52  | 8      | 38.10 | 3      | 3.80  | 24     | 30.38 |
| Si    | 1      | 2.08  | 15     | 31.25 | 0      | 0  | 5      | 50 | 0      | 0     | 12     | 57.14 | 1      | 1.27  | 32     | 40.51 |

### APPENDIX 22: DESCRIPTIVE STATISTICS AND ANALYSIS OF VARIANCE OF MMPI-2 SCALES WITH RESPONSIBILITY

|       | CR    |       | DCR   |       | CR + DCR |       | NCR   |       | TOTAL |       | R    | R <sup>2</sup> | F     | P    |
|-------|-------|-------|-------|-------|----------|-------|-------|-------|-------|-------|------|----------------|-------|------|
|       | X     | S.D.  | X     | S.D.  | X        | S.D.  | X     | S.D.  | X     | S.D.  |      |                |       |      |
| L     | 59.33 | 10.98 | 61.80 | 11.66 | 59.75    | 11.04 | 62.43 | 12.22 | 60.47 | 11.35 | .105 | .011           | .852  | .359 |
| F     | 76.54 | 22.87 | 82.10 | 32.27 | 77.50    | 24.50 | 77.67 | 17.30 | 77.54 | 22.70 | .003 | .000           | .001  | .977 |
| K     | 44.04 | 11.99 | 44.00 | 9.66  | 44.03    | 11.54 | 43.67 | 11.06 | 43.94 | 11.35 | .014 | .000           | .016  | .900 |
| Hs    | 65.75 | 17.08 | 66.30 | 13.41 | 65.84    | 16.40 | 61.33 | 12.74 | 64.65 | 15.57 | .129 | .017           | 1.300 | .258 |
| D     | 72.19 | 15.41 | 78.00 | 16.55 | 73.19    | 15.62 | 71.29 | 19.49 | 72.68 | 16.62 | .221 | .049           | 4.744 | .032 |
| Hy    | 64.17 | 16.20 | 66.60 | 15.26 | 64.59    | 15.94 | 57.48 | 12.18 | 62.70 | 15.29 | .207 | .043           | 3.439 | .068 |
| Pd    | 71.54 | 15.01 | 72.10 | 15.37 | 71.64    | 14.94 | 63.52 | 15.31 | 69.48 | 15.37 | .235 | .055           | 4.491 | .037 |
| Mf    | 56.40 | 9.810 | 59.40 | 10.76 | 56.91    | 9.95  | 52.62 | 9.14  | 55.77 | 9.87  | .193 | .037           | 2.995 | .088 |
| Pa    | 79.79 | 20.77 | 83.80 | 25.62 | 80.48    | 21.49 | 69.33 | 16.22 | 77.52 | 20.72 | .239 | .057           | 4.674 | .034 |
| Pt    | 71.10 | 15.76 | 76.40 | 21.08 | 72.02    | 16.70 | 69.67 | 16.91 | 71.39 | 16.68 | .063 | .004           | .303  | .583 |
| Sc    | 76.17 | 15.87 | 77.90 | 26.93 | 76.47    | 17.96 | 75.33 | 13.62 | 76.16 | 16.84 | .030 | .001           | .069  | .794 |
| Ma    | 60.02 | 11.19 | 51.80 | 10.55 | 58.60    | 11.43 | 61.29 | 17.33 | 59.32 | 13.18 | .090 | .008           | .635  | .428 |
| Si    | 60.13 | 12.92 | 66.00 | 13.09 | 61.14    | 13.03 | 65.76 | 12.58 | 62.37 | 12.99 | .158 | .025           | 1.977 | .164 |
| A     | 65.58 | 13.14 | 69.90 | 16.18 | 66.33    | 13.65 | 67.19 | 12.05 | 66.56 | 13.18 | .029 | .001           | .065  | .799 |
| R     | 52.67 | 10.68 | 57.50 | 15.85 | 53.50    | 11.71 | 51.57 | 13.67 | 52.99 | 12.20 | .070 | .005           | .382  | .538 |
| Es    | 35.85 | 9.58  | 35.50 | 8.97  | 35.79    | 9.41  | 32.62 | 5.02  | 34.95 | 8.55  | .071 | .005           | .445  | .506 |
| MAC-R | 59.15 | 11.23 | 57.50 | 12.23 | 58.86    | 11.31 | 54.19 | 15.23 | 57.62 | 12.54 | .166 | .027           | 2.171 | .145 |
| ANX   | 69.46 | 12.74 | 72.50 | 13.84 | 69.98    | 12.87 | 68.05 | 11.16 | 69.47 | 12.40 | .069 | .005           | .373  | .543 |
| FRS   | 66.38 | 16.75 | 67.80 | 16.63 | 66.62    | 16.59 | 69.95 | 13.63 | 67.51 | 15.84 | .094 | .009           | .679  | .412 |
| OBS   | 60.63 | 13.88 | 63.60 | 14.49 | 61.14    | 13.91 | 60.52 | 12.86 | 60.97 | 13.56 | .020 | .000           | .031  | .860 |
| DEP   | 71.44 | 15.88 | 77.50 | 18.48 | 72.48    | 16.35 | 71.95 | 14.97 | 72.34 | 15.90 | .015 | .000           | .017  | .897 |
| HEA   | 68.42 | 13.79 | 64.60 | 16.35 | 67.76    | 14.18 | 64.90 | 11.00 | 67.00 | 13.40 | .095 | .009           | .696  | .407 |
| BIZ   | 70.35 | 18.24 | 75.10 | 21.51 | 71.17    | 18.73 | 70.52 | 14.54 | 71.00 | 17.62 | .016 | .000           | .021  | .886 |
| ANG   | 55.40 | 13.65 | 55.30 | 11.25 | 55.38    | 13.17 | 55.29 | 12.83 | 55.35 | 13.00 | .003 | .000           | .001  | .978 |
| CYN   | 62.35 | 11.81 | 60.10 | 11.14 | 61.97    | 11.63 | 65.33 | 13.08 | 62.86 | 12.04 | .124 | .015           | 1.209 | .275 |
| ASP   | 55.58 | 11.36 | 49.00 | 8.47  | 54.45    | 11.13 | 56.38 | 11.13 | 54.96 | 11.10 | .077 | .006           | .465  | .498 |
| TPA   | 55.23 | 12.95 | 48.40 | 8.09  | 54.05    | 12.46 | 57.52 | 14.62 | 54.97 | 13.07 | .118 | .014           | 1.090 | .300 |
| LSE   | 64.02 | 14.32 | 72.60 | 20.22 | 65.50    | 15.63 | 63.57 | 12.60 | 64.99 | 14.83 | .058 | .003           | .258  | .613 |
| SOD   | 58.40 | 15.84 | 64.30 | 17.00 | 59.41    | 16.05 | 63.48 | 14.15 | 60.49 | 15.58 | .116 | .013           | 1.048 | .309 |
| FAM   | 63.71 | 14.37 | 67.90 | 16.00 | 64.43    | 14.60 | 60.57 | 13.56 | 63.41 | 14.35 | .120 | .014           | 1.117 | .294 |
| WRK   | 65.27 | 12.85 | 68.00 | 15.46 | 65.74    | 13.23 | 65.48 | 11.86 | 65.67 | 12.80 | .009 | .000           | .007  | .936 |
| TRT   | 66.56 | 14.68 | 67.90 | 18.90 | 66.79    | 15.31 | 65.00 | 13.05 | 66.32 | 14.68 | .054 | .003           | .228  | .635 |
| Fb    | 83.46 | 26.38 | 90.20 | 28.32 | 84.62    | 26.59 | 86.33 | 22.98 | 85.08 | 25.55 | .030 | .001           | .068  | .794 |
| VRIN  | 54.52 | 10.14 | 47.10 | 7.34  | 53.24    | 10.07 | 58.24 | 10.84 | 54.57 | 10.45 | .213 | .045           | 3.647 | .060 |
| TRINR | 9.646 | 1.86  | 8.80  | 1.14  | 9.50     | 1.78  | 10.24 | 2.66  | 9.67  | 2.06  | .159 | .025           | 2.007 | .161 |
| TRIN  | 60.81 | 9.45  | 55.90 | 5.76  | 59.97    | 9.08  | 66.43 | 12.90 | 61.68 | 10.54 |      |                |       |      |
| O-H   | 55.50 | 12.26 | 57.60 | 9.71  | 55.86    | 11.81 | 50.95 | 10.71 | 54.56 | 11.67 | .187 | .035           | 2.794 | .099 |
| Do    | 36.83 | 8.22  | 36.80 | 9.48  | 36.83    | 8.36  | 37.52 | 8.65  | 37.01 | 8.39  | .037 | .001           | .105  | .747 |
| Re    | 42.60 | 10.60 | 44.80 | 10.51 | 42.98    | 10.52 | 43.67 | 11.41 | 43.16 | 10.70 | .028 | .001           | .062  | .804 |
| Mt    | 66.35 | 12.41 | 70.90 | 14.74 | 67.14    | 12.81 | 67.95 | 11.07 | 67.35 | 12.31 | .029 | .001           | .067  | .797 |
| GM    | 36.94 | 10.65 | 37.50 | 12.13 | 37.03    | 10.81 | 35.57 | 6.95  | 36.65 | 9.91  | .066 | .004           | .333  | .565 |
| GF    | 48.35 | 9.48  | 51.60 | 9.56  | 48.91    | 9.49  | 51.86 | 9.01  | 49.70 | 9.40  | .139 | .019           | 1.522 | .221 |
| PK    | 74.19 | 15.97 | 76.20 | 19.95 | 74.53    | 16.55 | 75.76 | 15.57 | 74.86 | 16.20 | .034 | .001           | .087  | .768 |
| PS    | 72.23 | 14.98 | 76.30 | 21.05 | 72.93    | 16.04 | 74.38 | 14.77 | 73.32 | 15.63 | .041 | .002           | .131  | .718 |
| MDS   | 68.03 | 13.27 | 77.00 | 13.10 | 69.42    | 13.50 | 65.47 | 13.24 | 68.43 | 13.44 | .129 | .017           | .975  | .328 |
| APS   | 49.29 | 11.48 | 44.85 | 9.89  | 48.60    | 11.26 | 44.13 | 9.52  | 47.48 | 10.95 | .178 | .032           | 1.900 | .173 |

X=mean, S.D. = standard deviation; df=(1,77)

**APPENDIX 23 : DESCRIPTIVE STATISTICS AND ANALYSIS OF VARIANCE  
OF OTHER DEMOGRAPHIC, CLINICAL AND CRIMINAL VARIABLES (NOT  
USED IN DISCRIMINANT ANALYSIS)**

**GENDER**

| GENDER  | CR  |       | DCR |       | CR+DCR |       | NCR |       | Total |       |
|---------|-----|-------|-----|-------|--------|-------|-----|-------|-------|-------|
|         | No. | %     | No. | %     | No.    | %     | No. | %     | No.   | %     |
| Female  | 14  | 23.73 | 2   | 15.38 | 16     | 22.22 | 4   | 18.18 | 20    | 21.28 |
| Male    | 45  | 76.27 | 11  | 84.62 | 56     | 77.78 | 18  | 81.82 | 74    | 78.72 |
| Missing | 0   | 0     | 0   | 0     | 0      | 0     | 0   | 0     | 0     | 0     |
| Total   | 59  | 100   | 13  | 100   | 72     | 100   | 22  | 100   | 94    | 100   |

Phi=.042, df=1,  $\chi^2=.164$ , p=.685

**INSTANT OFFENSE**

| INSTANT<br>OFFENSE        | CR (n=59) |       | DCR (n=13) |       | CR+NCR (n=72) |       | NCR (n=22) |       | Total (n=94) |       |
|---------------------------|-----------|-------|------------|-------|---------------|-------|------------|-------|--------------|-------|
|                           | No.       | %     | No.        | %     | No.           | %     | No.        | %     | No.          | %     |
| Property                  | 12        | 20.34 | 3          | 23.08 | 15            | 20.83 | 6          | 27.27 | 21           | 22.34 |
| Moderate<br>violence      | 7         | 11.86 | 2          | 15.38 | 9             | 12.50 | 1          | 4.55  | 10           | 10.64 |
| Sexual Offenses           | 7         | 11.86 | 0          | 0     | 7             | 9.72  | 3          | 13.64 | 10           | 10.64 |
| Severe Violence           | 7         | 11.86 | 2          | 15.38 | 9             | 12.50 | 2          | 9.09  | 11           | 11.70 |
| Murder                    | 19        | 32.20 | 4          | 30.77 | 23            | 31.94 | 7          | 31.82 | 30           | 31.91 |
| Murder + other<br>violent | 7         | 11.86 | 2          | 15.38 | 9             | 12.50 | 3          | 13.64 | 12           | 12.77 |
| Total                     | 59        | 100   | 13         | 100   | 72            | 100   | 22         | 100   | 94           | 100   |

Phi=.136, df=5,  $\chi^2=1.742$ , p=.884

**MARITAL STATUS**

| MARITAL<br>STATUS              | CR (59) |       | DCR (12) |    | CR+DCR(71) |       | NCR (22) |       | Total (93) |       |
|--------------------------------|---------|-------|----------|----|------------|-------|----------|-------|------------|-------|
|                                | No.     | %     | No.      | %  | No.        | %     | No.      | %     | No.        | %     |
| No Significant<br>Relationship | 26      | 44.07 | 6        | 50 | 32         | 45.07 | 12       | 54.55 | 44         | 47.31 |
| Significant<br>Relationship    | 33      | 55.93 | 6        | 50 | 39         | 54.93 | 10       | 45.45 | 49         | 52.69 |
| Missing data                   |         |       | 1        |    | 1          |       |          |       | 1          |       |

Phi=.081, df=1,  $\chi^2=.605$ , p=.437

**IQ**

| IQ                  | CR(54) |       | DCR(12) |       | CR+DCR(66) |       | NCR (21) |       | Total (87) |       |
|---------------------|--------|-------|---------|-------|------------|-------|----------|-------|------------|-------|
|                     | No.    | %     | No.     | %     | No.        | %     | No.      | %     | No.        | %     |
| Average or<br>below | 45     | 83.33 | 10      | 83.33 | 55         | 83.33 | 18       | 85.71 | 73         | 83.91 |
| Above average       | 9      | 16.67 | 2       | 16.67 | 11         | 16.67 | 3        | 14.29 | 14         | 16.09 |
| Missing data        | 5      |       | 1       |       | 6          |       | 1        |       | 7          |       |

Phi=.028, df=1,  $\chi^2=.067$ , p=.796

**EDUCATION**

| EDUCATION    | CR (50) |    | DCR (9) |       | CR+DCR(59) |       | NCR (21) |       | Total (80) |       |
|--------------|---------|----|---------|-------|------------|-------|----------|-------|------------|-------|
|              | No.     | %  | No.     | %     | No.        | %     | No.      | %     | No.        | %     |
| Grade 8,9    | 12      | 24 | 1       | 11.11 | 13         | 22.03 | 6        | 28.57 | 19         | 23.75 |
| Grade 10,11  | 19      | 38 | 2       | 22.22 | 21         | 35.59 | 4        | 19.05 | 25         | 31.25 |
| Grade 12     | 11      | 22 | 1       | 11.11 | 12         | 20.34 | 9        | 42.86 | 21         | 26.25 |
| Tertiary     | 8       | 16 | 5       | 55.55 | 13         | 22.03 | 2        | 9.52  | 15         | 18.75 |
| Missing Data | 9       |    | 4       |       | 13         |       | 1        |       | 14         |       |

Phi=.272, df=3,  $\chi^2=5.920$ , p=.116

**ANTISOCIAL PERSONALITY DISORDER**

| ANTISOCIAL<br>PERSONALITY<br>DISORDER | CR(59) |       | DCR (13) |       | CR+DCR(72) |       | NCR (22) |       | Total (94) |       |
|---------------------------------------|--------|-------|----------|-------|------------|-------|----------|-------|------------|-------|
|                                       | No.    | %     | No.      | %     | No.        | %     | No.      | %     | No.        | %     |
| No diagnosis<br>mentioned             | 49     | 83.05 | 12       | 92.31 | 61         | 84.72 | 21       | 95.45 | 82         | 87.23 |
| Diagnosis of APD                      | 10     | 16.95 | 1        | 7.69  | 11         | 15.28 | 1        | 4.55  | 12         | 12.77 |

Phi=.136, df=1,  $\chi^2=1.743$ , p=.187

## **APPENDIX 24: VARIATION IN HIGH POINT PAIRS BASED ON RESPONSIBILITY\***

| Pairs     | CR (48)     | DCR (10)    | CR+DCR (58)  | NCR (21)   | TOTAL (79)   |
|-----------|-------------|-------------|--------------|------------|--------------|
| 1-2/2-1   | 2 (4.17%)   | .33 (3.33%) | 2.33 (4.17%) | 0 (0%)     | 2.33 (2.95%) |
| 1-3/3-1   | 2 (4.17%)   | 0 (0%)      | 2 (3.45%)    | 0 (0%)     | 2 (2.53%)    |
| 1-4/4-1   | 1 (2.08%)   | 0 (0%)      | 1 (1.72%)    | 0 (0%)     | 1 (1.27%)    |
| 1-5/5-1   | 1 (2.08%)   | 1 (10%)     | 2 (3.45%)    | 0 (0%)     | 2 (2.53%)    |
| 2-3/3-2   | 1 (2.08%)   | .33 (3.33%) | 1.33 (2.29%) | 0 (0%)     | 1.33 (1.68%) |
| 2-4/4-2   | 1 (2.08%)   | .33 (3.33)  | 1.33 (2.29%) | 1 (4.76%)  | 2.33 (2.95%) |
| 2-6/6-2   | 3 (6.25%)   | .5 (5%)     | 3.5 (6.03%)  | 1 (4.76%)  | 4.5 (5.70%)  |
| 2-7/7-2   | 0 (0%)      | 1 (10%)     | 1 (1.72%)    | 3 (14.29%) | 4 (5.06%)    |
| 2-8/8-2   | 1 (2.08%)   | 0 (0%)      | 1 (1.72%)    | 2 (9.52%)  | 3 (3.80%)    |
| 2-10/10-2 | 0 (0%)      | 0 (0%)      | 0 (0%)       | 2 (9.52%)  | 2 (2.53%)    |
| 3-4/4-3   | 1 (2.08%)   | 0 (0%)      | 1 (1.72%)    | 0 (0%)     | 1 (1.27%)    |
| 3-5/5-3   | 1 (2.08%)   | 0 (0%)      | 1 (1.72%)    | 0 (0%)     | 1 (1.27%)    |
| 4-5/5-4   | 2 (4.17%)   | 0 (0%)      | 2 (3.45%)    | 0 (0%)     | 2 (2.53%)    |
| 4-6/6-4   | 8 (16.67%)  | 2 (20%)     | 10 (17.24%)  | 0 (0%)     | 10 (12.66%)  |
| 4-7/7-4   | 0 (0%)      | 0 (0%)      | 0 (0%)       | 1 (4.76%)  | 1 (1.27%)    |
| 4-8/8-4   | 2.5 (5.21%) | 0 (0%)      | 2.5 (4.31%)  | 2 (9.52%)  | 4.5 (5.70%)  |
| 4-9/9-4   | 3 (6.25%)   | 0 (0%)      | 3 (5.17%)    | 0 (0%)     | 3 (3.80%)    |
| 5-6/6-5   | .5 (1.04%)  | 0 (0%)      | .5 (.86%)    | 0 (0%)     | .5 (.63%)    |
| 5-8/8-5   | 0 (0%)      | 0 (0%)      | 0 (0%)       | 1 (4.76%)  | 1 (1.27%)    |
| 6-7/7-6   | .5 (1.04%)  | 1 (10%)     | 1.5 (2.59%)  | 2 (9.52%)  | 3.5 (4.43%)  |
| 6-8/8-6   | 10(20.83%)  | 3.5 (35%)   | 13.5(23.28%) | 1 (4.76%)  | 14.5(18.35%) |
| 6-9/9-6   | 1.5 (3.13%) | 0 (0%)      | 1.5 (2.59%)  | 2 (9.52%)  | 3.5 (4.43%)  |
| 6-10/10-6 | 1 (2.08%)   | 0 (0%)      | 1 (1.72%)    | 0 (0%)     | 1 (1.27%)    |
| 7-8/8-7   | 2 (4.17%)   | 0 (0%)      | 2 (3.45%)    | 0 (0%)     | 2 (2.53%)    |
| 7-9/9-7   | 1 (2.08%)   | 0 (0%)      | 1 (1.72%)    | 0 (0%)     | 1 (1.27%)    |
| 8-9/9-8   | 1.5 (3.13%) | 0 (0%)      | 1.5 (2.59%)  | 2 (9.52%)  | 3.5 (4.43%)  |
| 9-10/10-9 | .5 (1.04%)  | 0 (0%)      | .5 (.86%)    | 1 (4.76%)  | 1.5 (1.90%)  |
| Total     | 48 (100%)   | 10 (100%)   | 58 (100%)    | 21 (100%)  | 79 (100%)    |

\*High point pairs not necessarily well-defined or elevated.

## **APPENDIX 25: PROFILES EXCLUDED FOR NOT MEETING VALIDITY CUT-OFF SCORES FOR MMPI-2**

Around five profiles were excluded for being random or incomplete (?, VRIN or TRIN scales), none for faking good (trying to appear less pathological), and seven for trying to fake bad in the sense of appearing more pathological/less virtuous than they really are. This was to be expected.

(a)Excessively high scores on ?, VRIN or TRIN probably signifying a lack of ability to complete the MMPI-2, probably here due to psychosis, which would impede attention / concentration (positive and negative symptoms), as well as motivation (more the negative symptoms of psychosis). It can be hypothesized that a strong delusional system, particularly a paranoid one, might impede the desire to answer accurately, and might lead to random, or biased responding.

Hallucinations, or indeed any sense of heightened arousal might impede attention / concentration. Negative symptoms such as avolition and generally low energy levels would obviously also affect motivation. However, non-psychotic individuals might also respond randomly or not finish the MMPI-2. Normally, this would be due to anxiety to be analyzed (due to fear of conviction, or even just a psychoanalytic fear of the assessor (therapist) seeing the real self). Fatigue, in older individuals, or individuals with subtle organic impairment not picked up by cognitive assessment, could also lead to random responding or not finishing the MMPI-2.

(b)Excessively high scores on K might signify a desire to appear less pathological (or possibly more morally virtuous, although this is measured better by L), and were not present in this sample. It makes sense that in a pre-trial forensic assessment, where an evaluation of severe pathology would in all likelihood lead to a court ruling of not criminally responsible, that most patients would not bias their results in this direction. Indeed, profiles biased in this direction would lead to mental health personnel to look more closely for signs of psychosis or other major mental disorders. Situations where people fake less pathology tend to be ones such as job interviews and custody suits.

(c)Excessively high scores on F or Fb scales signify a desire to appear more pathological. Assessors have to be particularly cautious here, as this malingering does not necessarily imply criminal responsibility. Firstly, this profile at less extreme levels copies that of a standard pre-trial forensic patient, which is why particularly high cut-off scores have been used here. Secondly, all pre-trial forensic patients have a strong material motive to "make sure" that they are evaluated as criminally not responsible, and thus even those not responsible individuals might malingering. Thirdly, individuals may well have unconscious psychodynamic motives for appearing "bad" that lead to high F or Fb scores. Psychotic processes such as persecutory delusions and command hallucinations cannot be ruled out here either. Nevertheless, high F or Fb scores do denote individuals who are consciously or unconsciously faking bad, and it was expected to have a fair number in a pre-trial forensic assessment.

## **APPENDIX 26: DISCRIMINANT ANALYSIS USING ONLY “OBJECTIVE” DEMOGRAPHIC AND CLINICAL VARIABLES.**

The only demographic or clinical variable that can be classified as “objective” in the sense that it can be classified according to (theoretically) indisputable empirical evidence, that was also significant in discriminating between CR/DCR and NCR, was psychiatric history ( $F=10.519$ ,  $df=1$ ,  $p=.0017$ ), and was successful in classifying 76.67% of cases. In fact though, it correctly classified 100% of CR/DCR cases and 0% of NCR cases.

**Table Of “Objective” Demographic And Clinical Variables**

| N=90                                                    | Wilk's Lambda      | F-remove(1,88) | p-level          |
|---------------------------------------------------------|--------------------|----------------|------------------|
| Psychiatric History                                     | 1.000              | 10.519         | .0017            |
| Wilk's Lambda = .893, $F(1,88) = 10.519$ , $p < 0.0017$ |                    |                |                  |
| Group                                                   | Percentage correct | Predicted NCR  | Predicted CR/DCR |
| Observed NCR                                            | 0                  | 0              | 21               |
| Observed CR/DCR                                         | 100                | 0              | 69               |
| Total                                                   | 76.67              | 0              | 90               |

## **APPENDIX 27: DISCRIMINANT ANALYSIS USING ONLY “OBJECTIVE” DEMOGRAPHIC AND CLINICAL, AS WELL AS THE MMPI-2 VARIABLES.**

“Objective” demographic and clinical variables, combined with MMPI-2 variables in a discriminant analysis, produced 5 significant variables with predictive power (Psychiatric History, Pa, Es, BIZ, MAC-R). These produced a significant discriminant equation ( $F=6.665$ ,  $df=5$ ,  $p<0.0000$ ), but this equation was less good at reclassifying the sample than just using the MMPI-2 scales alone, as it only managed to correctly classify 80.26% of cases.

**Table of “Objective” Demographic and Clinical variables, as well as MMPI-2 Variables**

| N=75                                                   | Wilk's Lambda      | F-remove(1,69) | p-level          |
|--------------------------------------------------------|--------------------|----------------|------------------|
| Psychiatric History                                    | .741               | 6.84           | .0109            |
| Pa                                                     | .864               | 19.41          | .0000            |
| Es                                                     | .740               | 6.73           | .0116            |
| BIZ                                                    | .727               | 5.40           | .0236            |
| MAC-R                                                  | .719               | 4.56           | .0363            |
| Wilk's Lambda = .674, $F(5,69) = 6.665$ , $p < 0.0000$ |                    |                |                  |
| Group                                                  | Percentage correct | Predicted NCR  | Predicted CR/DCR |
| Observed NCR                                           | 50                 | 10             | 10               |
| Observed CR/DCR                                        | 91.07              | 5              | 51               |
| Total                                                  | 80.26              | 15             | 61               |

## APPENDIX 28: DISCRIMINANT ANALYSES OF CR, DCR AND NCR GROUPS

### Discriminant Analysis Of Responsibility With Demographic and Clinical Variables

| N=91            | Wilk's Lambda | F-remove(2,85) | p-level |
|-----------------|---------------|----------------|---------|
| Diagnosis       | .332          | 50.868         | .0000   |
| Psychosis       | .214          | 17.689         | .0000   |
| Race            | .170          | 5.318          | .0067   |
| Substance Abuse | .171          | 5.685          | .0048   |

Wilk's Lambda = .151, F (8,170) = 33.442, p < 0.0000

| Group        | Percentage correct | Predicted NCR | Predicted DCR | Predicted CR |
|--------------|--------------------|---------------|---------------|--------------|
| Observed NCR | 77.27              | 17            | 4             | 1            |
| Observed DCR | 45.45              | 3             | 5             | 3            |
| Observed CR  | 98.28              | 1             | 0             | 57           |
| Total        | 86.81              | 21            | 9             | 61           |

### Discriminant Analysis of Responsibility with Demographic, Clinical and MMPI-2 Variables

| N=77            | Wilk's Lambda | F-remove(2,68) | p-level |
|-----------------|---------------|----------------|---------|
| Diagnosis       | .268          | 49.807         | .0000   |
| Race            | .119          | 3.253          | .0447   |
| Substance Abuse | .120          | 3.480          | .0364   |
| Psychosis       | .166          | 18.029         | .0000   |
| Pa              | .122          | 4.232          | .0185   |
| Ma              | .119          | 3.385          | .0397   |
| Es              | .120          | 3.532          | .0347   |

Wilk's Lambda = .151, F (14, 136) = 19.758, p < 0.0000

| Group        | Percentage correct | Predicted NCR | Predicted DCR | Predicted CR |
|--------------|--------------------|---------------|---------------|--------------|
| Observed NCR | 95.24              | 20            | 1             | 0            |
| Observed DCR | 75.00              | 1             | 6             | 1            |
| Observed CR  | 97.92              | 1             | 0             | 47           |
| Total        | 94.81              | 22            | 7             | 48           |

### Discriminant Analysis Of Responsibility With MMPI-2 Variables

| N=79  | Wilk's Lambda | F-remove(2,70) | p-level |
|-------|---------------|----------------|---------|
| Mf    | .650          | 2.932          | .060    |
| Pa    | .739          | 8.144          | .0007   |
| Es    | .678          | 4.555          | .0138   |
| ASP   | .655          | 3.253          | .0446   |
| Si    | .643          | 2.508          | .0887   |
| MAC-R | .648          | 2.800          | .0677   |
| BIZ   | .643          | 2.526          | .0872   |

Wilk's Lambda = .600, F (14, 140) = 2.914, p < 0.0007

| Group        | Percentage correct | Predicted NCR | Predicted DCR | Predicted CR |
|--------------|--------------------|---------------|---------------|--------------|
| Observed NCR | 61.90              | 13            | 0             | 8            |
| Observed DCR | 20.00              | 1             | 2             | 7            |
| Observed CR  | 85.42              | 5             | 2             | 41           |
| Total        | 70.89              | 19            | 4             | 56           |