VALIDATION OF CLINICAL SCREENS FOR SUICIDALITY AND SEVERE MENTAL DISORDERS FOR JAIL INMATES

Kimberly S. Harrison, B.A.

Thesis Prepared for the Degree of

MASTER OF SCIENCE

UNIVERSITY OF NORTH TEXAS

May 2005

APPROVED:

Richard Rogers, Major Professor
Charles A. Guarnaccia, Committee Member
Kenneth W. Sewell, Committee Member
Linda Marshall, Chair of the Department of Psychology
Sandra L. Terrell, Dean of the Robert B. Toulouse School of Graduate Studies

Harrison, Kimberly S., Validation of clinical screens for suicidality and severe mental disorders for jail inmates. Master of Science (Psychology), May 2005, 121 pp., 43 tables, references, 112 titles.

Psychologists and other mental health professionals working in correctional institutions bear the considerable responsibility for identifying, diagnosing, and treating mentally disordered inmates. The importance of these responsibilities has been recognized in recent years because of the burgeoning population of inmates in general and the higher numbers of inmates with mental illness in particular. Research has demonstrated that the screens currently used in correctional settings to identify mentally disordered and suicidal inmates are either unvalidated or generally ineffective. This study investigates the validity of different mental health screens in a jail population. Inmates from the Grayson County Jail were administered three screens: the Referral Decision Scale (RDS), Personality Assessment Screener (PAS), and the Mental Disability/Suicide Intake Screen (MDSIS). Criterion measures were the Schedule for Affective Disorders and Schizophrenia (SADS) for Axis I disorders and the Suicide Probability Scale (SPS) for suicidal ideation. Results indicate that each screen most effectively assessed one clinical domain: the RDS for psychosis, the MDSIS for suicidality, and the PAS for depression. Gender differences were observed in screen items most effective for classifying inmates by suicide risk level.

TABLE OF CONTENTS

Page

LIST OF TABLES v

Chapter

1. INTRODUCTION 1

Prevalence of Mentally Disordered Offenders in Jail Facilities

Referred Studies

Epidemiological Studies

Characteristics of Mentally Disordered Inmates

Gender Issues

Epidemiological Data

Gender Differences in Role Expectations

Overview of Jail Suicides

Clinical and Actuarial Predictors of Suicide Attempts

Conceptual Models of Inmate Suicide Risk

Legal Issues in Jail Suicides

Clinical Assessment of Mental Disorders

Challenges to Clinical Managements

Mental Health Screens

Screen Development

Selective Review of Current Screens

Purpose of the Current Study

Research Questions

2. METHOD 30

Participants

Materials

Referral Decision Scale (RDS)

Mental Disability/Suicide Intake Screen (MDSIS)

Personality Assessment Screener® (PAS)

Suicide Probability Scale (SPS)

Schedule of Affective Disorders and Schizophrenia (SADS)

Procedure
Statistical Methods

3. RESULTS 38
Research Question #1
MDSIS
RDS
PAS
Internal Consistency
Research Question #2
MDSIS
RDS
Research Question #3
MDSIS
RDS
PAS
Research Question #4
MDSIS
RDS
PAS
Research Question #5
MDSIS
RDS
PAS
Research Question #6
Research Question #7

4. DISCUSSION 70
Current Practices in Screening Jail Samples
Development of Effective Screens
Item Development
Scale Validation
Major Depression
High Suicide Risk

Psychotic Symptoms
Scale Homogeneity
Factor Analysis
Gender Issues
Predictors of Male Suicide Risk
Thoughts of Suicide
Feelings of Persecution
Perception of Oneself as Unhappy and Negative
Predictors of Female Suicide Risk
Perception by Others as Aggressive
Beliefs of Being Poisoned or Plotted Against
Dysphoric Mood
Practical Implications for Correctional Settings
Limitations of the Current Study
Directions for Future Research
Summary

APPENDICES 99

A. REFERRAL DECISION SCALE (RDS)
B. MENTAL DISABILITY/SUICIDE INTAKE SCREENING (MDSIS)
C. CONSENT FORM
D. SUICIDE PROBABILITY SCALE FACTOR LOADINGS
E. EXPLORATORY FACTOR ANALYSIS OF THE SUICIDE PROBABILITY SCALE
F. SUBSCALE CORRELATIONS OF THE RDS, MDSIS, AND PAS

REFERENCES 113

LIST OF TABLES

Page

1. Properties and Item Coverage of the Screens for Severe Mental Disorders and Suicidality 27

2. Ethnic Representation in the Current Sample 38

3. Gender Differences for Jail Inmates in Age, Education, and Arrests 39

4. Gender Differences for Jail Inmates in the Prevalence of Major Depression, Psychotic Disorder, and Suicidality 40

5. Three-Factor Model of the MDSIS 41

6. Three-Factor Model of the RDS 42

7. Seven-Factor Model of the PAS Based on a Sample of Jail Inmates 45

8. Alpha Coefficients and Inter-item Correlations for the RDS and PAS Based on Original Subscales 48

9. Alpha Coefficients and Inter-item Correlations for the RDS, MDSIS, and PAS Scales Based on Exploratory Factor Analysis 49

10. Utility Estimates of the MDSIS-Depression Items as a Screen for a Diagnosis of Major Depression on the SADS 50

11. Utility Estimates of the RDS-Depression Items as a Screen for a Diagnosis of Major Depression on the SADS 51

12. Utility Estimates of the PAS-Negative Affect Items as a Screen for a Diagnosis of Major Depression on the SADS 52

13. Utility Estimates of the MDSIS-Psychotic Items as a Screen for a Diagnosis of Psychotic Disorder on the SADS 52

14. Utility Estimates of the RDS-Schizophrenia Items as a Screen for a Diagnosis of Psychotic Disorder on the SADS 53

15. Utility Estimates of the PAS-Psychotic Features Scale as a Screen for a Diagnosis of Psychotic Disorder on the SADS 54

16. Utility Estimates of the MDSIS-Suicide Scale for Identifying Inmates at High Risk for Suicidal Behavior 55

17. Utility Estimates of the RDS-Depression Scale for Identifying Inmates at High Risk for Suicidal Behavior 55

18. Utility Estimates of the PAS-Suicidal Thinking Scale for Identifying Inmates at High Risk for Suicidal Behavior 56

19. Utility Estimates of the MDSIS-Depression Scale in Identifying Cases of Major Depression across Genders 57

20. Utility Estimates of the RDS-Depression Scale in Identifying Cases of Major Depression across Genders 57

21. Utility Estimates of the PAS-Negative Affect Scale in Identifying Cases of Major Depression across Genders 58

22. Utility Estimates of the MDSIS-Psychosis Scale in Identifying Cases of Psychotic Disorders across Genders 58

23. Utility Estimates of the RDS-Schizophrenia Scale in Identifying Cases of Psychotic Disorders across Genders 59

24. Utility Estimates of the PAS-Psychotic Features Scale in Identifying Cases of Psychotic Disorders across Genders 59

25. Utility Estimates of the MDSIS-Suicide/Crisis Scale in Identifying Cases of High Suicide Risk across Genders 60

26. Utility Estimates of the RDS-Depression Scale in Identifying Cases of High Suicide Risk across Genders 60

27. Utility Estimates of the PAS-Suicidal Thinking Scale in Identifying Cases of High Suicide Risk across Genders 61

28. Discriminant Function Analysis of RDS Scores: Classifying Inmates as High or Low Risk for Suicide 62

29. Discriminant Function Analysis of MDSIS Scores: Classifying Inmates as High or Low Risk for Suicide 63

30. Discriminant Function Analysis of PAS Scores: Classifying Inmates as High or Low Risk for Suicide 63

31. Discriminant Function Analysis of Items across the Three Screens: Classifying Inmates as High or Low Risk for Suicide 64

32. Discriminant Function Coefficients and Structure Correlations for DFA Items Classifying Inmates at Risk for Suicidal Behavior 65

33. Discriminant Function Analysis of Items across the Three Screens: Classifying Male Inmates as High or Low Risk for Suicide 66

34. Discriminant Function Coefficients and Structure Correlations for DFA Items Classifying Male Inmates at Risk for Suicidal Behavior 66

35. Discriminant Function Analysis of Items across the Three Screens: Classifying Female Inmates as High or Low Risk for Suicide 67

36. Discriminant Function Coefficients and Structure Correlations for DFA Items Classifying Female Inmates at Risk for Suicidal Behavior 68

37. Confirmatory Factor Analysis of the Suicide Probability Scale: Goodness of Fit Estimates 68

38. Item Properties of the RDS, MDSIS, and PAS 74

39. Comparison of the RDS, MDSIS, and PAS: Utility Estimates for Depression, Suicide Risk, and Psychotic Disorder 76

40. Recommended Cut Scores for Each Gender by Screen and Clinical Domain 87

41. SPS Factor Loadings (Factor Loading/Error Term) Generated by Confirmatory Factor Analysis Testing the Cull and Gill (1988) Model of Suicide Probability in a Sample of Inmates 108

42. Exploratory Factor Analysis of the Suicide Probability Scale 110

43. Subscale Correlations of the RDS, MDSIS, and PAS 112

CHAPTER 1

INTRODUCTION

Psychologists and other mental health professionals working in correctional institutions have the onerous responsibility for the diagnosis and treatment of mentally disordered inmates (Swank & Winer, 1976; Teplin, Abram, & McClelland, 1997). These professional duties are more challenging in jails than in other settings for three reasons. First, inmate populations are highly unstable, with inmates often staying less than one day. Second, professional resources in jails are severely limited. This lack of resources (Teplin & Swartz, 1989) frequently leaves mentally disordered inmates unidentified and untreated. Third, the often-chaotic atmosphere of jails hinders the staff's ability to distinguish inmates that are mentally disordered from those that are simply acting out with aggression or frustration.

An alarming trend in recent years is the utilization of correctional facilities as "the new mental institution" (Arboleda-Florez, Love, Fick, O'Brien, Hashman, & Aderibigbe, 1995, p. 123). Even conservative estimates (Teplin, 1990) indicate that up to 12% of inmates currently have a severe mental disorder and a range from 16% to 67% have some type of mental disorder. These trends are addressed in the first section of the Introduction, namely Prevalence of Mental Disordered Offenders in Jail Facilities.

A potential outcome of this recent trend towards increasing prevalence of mentally disordered offenders is a heightened risk of inmate suicides. Suicide is the leading cause of death among jail inmates (O'Leary, 1989) with rates at least nine times higher than in the general population (Hayes & Rowan, 1988). The second major

section, Overview of Jail Suicides, examines risk factors associated with inmate suicides. In addition, it provides conceptual models of suicidal behavior.

Following these two sections, the Introduction subsequently focuses on issues of clinical practice. Screens for serious mental disorders are critiqued with specific attention to correctional populations. Drawing on these assessment issues, the final section, Purpose of the Current Study, details the crucial reasons for assessing mental disorders and suicidality and outlines the hypotheses for the current study.

Prevalence of Mentally Disordered Offenders in Jail Facilities

Local jails are inundated with mentally disordered and have been described as the new “psychiatric emergency room” (Lev, 1998, p. 72). The following paragraphs survey the range of studies addressing the prevalence of mentally disordered inmates. After this review, I evaluate methodological issues and draw conclusions about prevalence rates.

Estimates of the prevalence for mentally disordered inmates vary widely depending on the criteria used in defining mental disorders and the measures used for their identification. Some early studies (e.g., Nielson, 1979; Petrich, 1976) derive their rates from those inmates referred for psychiatric evaluation. These estimates are markedly inflated and do not represent the prevalence rates in random jail population samples (e.g., Teplin, 1990). The findings of research from both of these perspectives, referred studies and epidemiological research are reviewed.

Referred Studies

Referred studies provide useful information about inmate populations requiring clinical intervention. They focus on those individuals referred to medical staff for

psychological or psychiatric evaluations. Their diagnoses are typically limited to severe mental disorders, such as psychotic and mood disorders. An obvious limitation of referred research is its lack of generalizability to the overall jail population.

Petrich (1976a) assessed the diagnostic rates in a jail study of psychiatric referrals. In a sample of 539 jail inmates, 49% were psychotic and an additional 10% met criteria for depression. Relying on individualized batteries, standardized measures used for diagnosing inmates were not systematically utilized. Instead, an individualized approach to diagnosis was employed. As Petrich (1976a, p. 414) observed, “a standardized interview format and diagnostic battery of tests are used for each patient” (Petrich, 1976a, p. 414). An unexpected finding was the low percentage of mood disorders.

Other referred studies rely on research measures with limited validity. For example, Lamb and Grant (1982) evaluated 102 male inmates referred by jail staff for psychiatric evaluation. They utilized Krawiecka, Goldberg, and Vaughan’s (1977) 5-point Psychiatric Assessment Scales, which (a) assessed mood symptoms such as depression, anxiety, and psychomotor retardation, and (b) evaluated psychotic symptoms, such as delusions, hallucinations, incoherence, and poverty of speech. For this referred sample, nearly all had a history of psychiatric hospitalizations, and most evidenced severe, overt major psychopathology at the time of the evaluation. Approximately three-fourths of the sample was diagnosed with schizophrenia and 22% with major mood disorders. Like the Petrich (1976a) study, the diagnoses were predominated by psychotic disorders.

Epidemiological Studies

Epidemiological research addresses the prevalence of mental disorders through random samples of inmates from the general population. These studies provide more generalizable information about the prevalence and range of diagnoses for mentally disordered inmates. However, marked variability is observed in the methods used for classification and diagnosis of disordered inmates. Therefore, method variance may account for much of the discrepancy in the reported prevalence rates of these correctional samples.

One common method for mental health professionals to identify mentally disordered inmates is simply to investigate their histories of psychiatric hospitalizations. As an example, Guy, Platt, Zwerling, and Bullock (1985) found a 17% prevalence rate for histories of psychiatric hospitalizations in a random sample of city jail inmates. Similarly, in a national study, Ditton (1999) found that 16% of inmates in local jails had prior inpatient hospitalizations. However, as described in Teplin and Voit (1996), previous hospitalization is not an effective method of classifying current mental disorders. In particular, many inmates may have legitimate disorders that are either unrecognized by clinical settings or not sufficiently severe as to warrant hospitalization.

Other methods for identifying mentally disordered inmates cover a broad range of psychological measures, screens, diagnostic interviews, and assessment batteries. These methods typically focus on present impairment but may also take into account lifetime history of disorders.

The methodology used by Schuckit, Herrman, and Schuckit (1977) is an example of overly restrictive exclusion criteria constraining the meaningfulness of their results.

They randomly selected 199 newly arrested male inmates from an urban jail. Using the Brief Screen for Psychiatric Illness (Woodruff, Goodwin, & Guze, 1974), they found very low rates of major depressive disorder. For example, only 3% of the inmates were currently experiencing a major mood disorder. Results of this study are compromised by the stringent exclusion criteria. They included only European American males whose primary charge was not drug-related. Also, the study was limited to only inmates who were charged with a felony but excluded those with prior felony arrests. Therefore, the low prevalence rates found with this study may be partially explained by the exclusion of inmates with misdemeanor charges, ethnic minority inmates, and those with past felony convictions.

Correctional research has also relied on traditional test batteries for determining the prevalence of mentally disordered male inmates. For example, Guy et al. (1985) administered a battery of tests: the Structured Clinical Interview (SCI; Burdock & Hardesty, 1968), MMPI-short form (Kincannon, 1968), the Wide-Range Achievement Test (WRAT; Jastrak, Bijou, & Jastrak, 1978), and the Rorschach. Additionally, they augmented this battery with a diagnostic interview. On a random sample of 486 male jail inmates, the battery approach yielded inconsistent results across measures. Guy et al. concluded that 11.0% were schizophrenic, 3.1% had bipolar disorder, and 1.1% had major depression. Beyond specific diagnoses, 49.5% of the sample expressed a current need for both mental health and drug/alcohol treatment services. By combining the three indicators (psychiatric opinion, self-expressed need for treatment, and psychological test results), Guy et al. concluded that about 34% of the inmates were in need of mental health services. However, this percentage includes drug and alcohol

treatment; the authors did not report the need for mental health treatment exclusive of substance abuse.

Recently, corrections-based prevalence studies have used structured interviews to standardize diagnoses. In a random sample of 495 male prison inmates, Cote and Hodgins (1990) used the Diagnostic Interview Schedule (DIS; Robins, Helzer, Croughan, & Ratcliff, 1981) to assess lifetime prevalence rates of mental disorders. They found that only 6.5% met criteria for schizophrenia. Approximately 6% were diagnosed with bipolar disorder with another 15% meeting criteria for major depressive disorder. In a subsequent study, Hodgins and Cote (1992) focused on a sample of 87 homicide offenders that were also assessed via the DIS. For these inmates, lifetime prevalences were 12.6% schizophrenia, 14.9% major depression, and 2.3% bipolar disorder. Inmates convicted of homicide had more than twice the rate of schizophrenia than other offenders from the same institution. These two studies were conducted on prison inmates, so results may have limited generalizability to jail detainees. However, they underscore the complex patterns that may be specific to certain offenses.

In an epidemiological study of the prevalence of mental disorders in a large urban jail, Arboleda-Florez et al. (1995) interviewed male inmates with the Structured Clinical Interview for DSM-III-R (SCID; Spitzer, Williams, Gibbon, & First, 1990) and found that 55% met criteria for an Axis I disorder. However, these diagnoses were predominated by alcohol and substance abuse. In contrast, relatively few inmates were diagnosed with severe Axis I disorders unrelated to substance abuse: 1.2 % with schizophrenia, 3.3% with major depression, and 0.4% with bipolar disorder. In contrast

to Cote and Hodgins (1990), these diagnoses reflect only current episodes and do not address lifetime history of mental disorders.

Birmingham, Gray, Mason, and Grubin (2000) used the Schedule for Affective Disorders and Schizophrenia-Lifetime Version (SADS; Spitzer & Endicott, 1978) to evaluate 546 male recently detained inmates who were awaiting trial. Excluding substance abuse, current and past episodes of Axis I disorders were found in 26% of the sample. Unfortunately, the authors did not delineate the prevalence of specific disorders; however, they observed that only about 6% of the inmates had episodes of psychosis or a major mood disorder.

Common methodological issues constrain direct comparisons across studies. Although most of these epidemiological studies used a random sample of inmates, the rates of mental disorder vary widely. Factors contributing to the discrepancies include variability in the diagnostic time period (e.g., lifetime or current episode) and differences in diagnostic methods (e.g., screens, interviews, or test batteries). Even within structured interviews, diagnoses varied substantially likely reflecting the breadth of these assessments, sample characteristics, and differences in the diagnostic coverage of Axis I interviews.

Characteristics of Mentally Disordered Inmates

Mentally disordered inmates can be generally categorized into two groups: (a) chronic offenders with public disorder offenses and (b) serious offenders with one or more violent felonies. On many occasions, the first group is arrested for nonserious offenses, such as trespassing and public disturbance. A subset of these chronic offenders may have extensive histories of mental disorders. In contrast, a small

proportion of the second group may commit violent crimes due to severe psychopathology, such as hallucinations or delusions.

Regarding chronic offenders, Ditton's (1999) national survey found that over half of mentally disordered jail inmates reported three or more prior sentences resulting in probation or incarceration. This percentage is substantially higher than other inmates. More dramatically, Arboleda-Florez et al. (1995) found that inmates with more than 10 prior arrests had the highest prevalence of mental disorder, exceeding two-thirds of the sample (71%). One hypothesis for chronic reoffending is that continued deinstitutionalization has left many mentally disordered individuals without social supports, which leads to homelessness and a high risk for status offenses. Compared to other jail inmates, the mentally disordered are 180% more likely to have been homeless prior to their arrest (Ditton, 1999).

The second group of mentally disordered inmates consists of serious offenders with a higher likelihood of being arrested for violent crimes. As observed among psychiatric referrals, Lamb and Grant (1982) found that most inmates (85%) with a history of serious physical violence also had severe, overt psychopathology, as compared with 64% among those with no history of serious physical violence. Over three-fourths of this referred sample of mentally disordered inmates had histories of serious physical violence.

A recent and disturbing trend is the disproportionate increase in the number of female inmates (Jordan et al., 1996; Lindquist & Lindquist, 1997; Phillips & Harm, 1998). Even though women still represent a small percentage of the jail population (e.g., 11.9%; Harrison & Karberg, 2004), their increasing numbers warrant an investigation

into their problems and needs. The next section examines gender-related issues regarding mental health and institutional adjustment for female inmates in correctional settings.

Gender Issues

Since 1990 the number of female defendants convicted of felonies has grown at more than 200% more rapidly than found with male defendants (Greenfeld & Snell, 1999). Currently, women account for about 22% of all arrestees and 14% of violent offenders (Greenfeld & Snell, 1999). Considering their rates of arrests including violent crimes, women are underrepresented in local jails, accounting for 11% of their population.

Epidemiological Data

Gender differences have been consistently observed in the number of jail inmates reporting a mental condition or a previous psychiatric hospitalization. In Ditton's (1999) national survey, she found 22.7% of female inmates versus 15.6% of males reported a mental disorder or had been psychiatrically hospitalized. In research targeting Axis I symptoms, Lindquist and Lindquist (1997) used the Brief Symptoms Inventory (BSI; Derogatis, 1993) to examine current differences between male and female jail inmates. They found on the BSI that female inmates reported significantly higher levels of somatization, obsessive-compulsive symptomatology, anxiety, hostility, and psychoticism than their male counterparts.

Lamb and Grant (1983) studied women inmates referred for psychiatric evaluation at a large urban jail and found that most (86%) had a history of psychiatric hospitalization. As an unexpected finding, more than two-thirds (approximately 70%) of

these referred inmates had a frequent history of serious physical violence with 23% currently incarcerated for a violent offense. In using Krawiecka et al.'s (1977) 5-point Psychiatric Assessment Scales, they found that 58% of the women currently evidenced severe, overt major psychopathology. Interestingly, this percentage is *lower* than the prevalence rates for male offenders.

Estimates of severe disorders among female inmates have varied dramatically across studies. For example, Arboleda-Florez et al. (1995) found relatively low rates of disorders in female inmates when using the SCID diagnostic interview. They found only 0.9% were diagnosed with psychotic disorder NOS, 0.9% with major depression, and 1.8% with bipolar disorder. In marked contrast, Martin, Cotton, Browne, Kurz, and Robertson (1995) found that 70% of incarcerated women had symptom levels indicative of clinical depression. Martin et al. used the Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1975), a 20-item self-report scale for assessing current depressive symptomatology. However, their study was conducted at a maximum security female prison, so its results may have limited generalizability to a jail population.

Jordan, Schlenger, Fairbank, and Caddell (1996) interviewed female inmates newly admitted to prison with the Composite International Diagnostic Interview (CIDI; World Health Organization, 1990), an augmented version of the DIS. They found that 13% of the female inmates had a lifetime prevalence for major depression. Rates for bipolar disorder and schizophrenia were not reported. As lifetime prevalence rates, these estimates are not likely to be strongly affected by the stress of their recent sentencing. However, this sample consisted of women already convicted and sentenced

for felony offenses and may not directly generalize to female jail detainees who are awaiting trial or serving short sentences for relatively minor charges.

Daniel, Robins, Reid, and Wilfley (1988) interviewed 100 female inmates consecutively admitted to prison with the DIS. Surprisingly, 90% received at least one Axis I diagnosis. The most common diagnoses were for alcohol abuse and/or dependence (36%) and drug abuse disorders (26%). In comparison to other studies, lifetime prevalences were as follows: 7% schizophrenia, 21% major depression, and 2% bipolar disorder. They compared these findings to women in the St. Louis epidemiologic catchment area also diagnosed with the DIS. They found that the incarcerated women had significantly higher rates of schizophrenia and major depression.

In summary, gender-related studies comparing prevalence rates of mental disorders in men and women generally agree that incarcerated females have higher rates of Axis I disorders. Specifically, the unweighted means for major depression are 26.2% for female versus 7.5% for male inmates. However, schizophrenia and bipolar disorders may be slightly higher for male inmates.

Diagnoses and clinical management of mental disorders may also be affected by the availability of mental health services. Interestingly, Teplin, Abram, and McClelland (1997) found that despite the growth of the female jail population, mental health services for incarcerated women were lacking or substantially less when compared to services for men. Of female inmates in a large urban jail, they found that over 75% of those needing services did not receive them. The availability of treatment also varies by diagnosis. Teplin and her colleagues concluded that female inmates with major

depression were three times less likely to receive services than those with schizophrenia and manic episodes.

Gender Differences in Role Expectations

One explanation for the discrepancy in mental health service provision between males and females addresses gender stereotypes and gender roles. In contrast to Teplin et al., Baskin, Sommers, Tessler, and Steadman (1989) found that even when controlling for need for mental health treatment, females are *more* likely than males to receive treatment while incarcerated. This discrepancy was explained in the framework of a role-incongruence hypothesis, which states that behaviors are interpreted in the context of differential expectations for male and female roles. Stereotypically, women are expected to be passive and nurturing. According to this hypothesis, characteristics such as aggression and violence are incongruent with this stereotypical image, even with female offenders. Because of this incongruence, they are more likely to be viewed as warranting treatment. Conversely, passivity and depressive symptoms are considered stereotypically “feminine” traits and men who exhibit them would be likely to receive a negative societal reaction.

Data supporting the role-incongruence hypothesis were observed both in hospital and jail settings. In a random sample of 666 individuals presenting to a psychiatric emergency room, Rosenfield (1982) found that men were significantly more likely to be hospitalized for stereotypically “feminine” disorders, such as neuroses and psychotic depression than for other Axis I disorders typically associated with men. Conversely, women were more likely to be hospitalized for “masculine” personality disorders and

substance abuse. These findings provide further support for the role-incongruence model with important implications for mental health service provision.

The role-incongruence hypothesis has also been studied in correctional settings (Baskin et al., 1989). Female inmates' behavior is more likely than their male counterparts' to be "psychiatrized" by correctional staff when they are aggressive or rebellious; their actions tend to be labeled "hysterical" rather than dangerous. Consistent with the role-incongruence hypothesis, Baskin et al. (1989) found that the probability of mental health placement was increased significantly if female inmates engaged in violence or aggressive behavior. As expected, male inmates with the same behavior were more likely to be placed in disciplinary confinement than on a mental health unit. Therefore, interventions are based on the nature of the inmate's actions and their apparent deviations from sex role norms. Consistent with role-incongruence theory, male inmates were more likely to be placed in mental health units for "female" psychiatric disorders, such as depression, than were women with the same type and level of symptomatology.

In both men and women, the presence of psychopathology contributes to a heightened risk of suicide. The next section examines the general characteristics and risk factors associated with inmates suicides.

Overview of Jail Suicides

Suicide is one of the leading causes of death among jail inmates (Maruschak, 2001; O'Leary, 1989). The suicide rate for jail inmates has been found to be at least nine times higher than that of the general population (Hayes & Rowan, 1988). As observed by O'Leary (1989), this alarming suicide rate is specific to jails where the rate

is about four times greater than in prisons. Factors potentially contributing to this increased rate include adaptation, intoxication, and shame.

One dramatic finding is that 51% of jail suicide attempts occur within the first 24 hours of incarceration (Hayes & Rowan, 1988). Frottier, Fruehwald, Ritter, Eher, Schwarzler, and Bauer (2002) investigated the relationship between length of time incarcerated and suicide risk. They found two periods of high suicide risk: within 48 hours of incarceration and after 60 days. The high risk of suicide within 48 hours of arrest was explained by Frottier et al. (2002) in terms of the arrestee's shame and embarrassment. In addition, inmates may become overwhelmed by the sudden isolation and feelings of helplessness, lack of information, and insecurity about the future. After the initial two days, Frottier et al. (2002) hypothesized that inmates become "jail wise," a state of overconfidence that lasts approximately 30 days. After this time, he conjectured that emotional exhaustion sets in, reaching its maximum by 60 days post-arrest. Inmates again reach a high potential for suicide during this second period.

The professional management of suicidal behavior requires removal or control of materials used in suicide attempts. Unfortunately, methods for attempting suicide frequently use easily available materials. The most common method for jail suicides is hanging with 82.5% of suicides conducted in this manner. Several less common methods could be potentially controlled by limiting contraband. These methods include drug overdoses at 9.1% of jail suicides and cutting arteries, at 4.0% (Fruehwald, Frottier, Ritter, Eher, & Gutierrez, 2002).

Clinical and Actuarial Predictors of Suicide Attempts

Many actuarial and clinical factors have been described as predictors of jail suicide. Historical factors cited as risk factors include juvenile delinquency (Ivanoff & Jang, 1991), past drug or alcohol abuse (Hopes, 1986), and more episodes of sexual, physical, and emotional abuse than their nonsuicidal counterparts (Blaauw, Arensman, Kraaij, Winkel, & Bout, 2002). LeBrun (1990) found that over 75% of male suicide attempters in one county jail had a history of psychiatric treatment. Unfortunately, these historical factors are very general and are unlikely to assist in identifying potentially suicidal inmates.

Demographic variables have been found to correlate with jail suicides, including gender (i.e., males; Sommers-Flanagan & Sommers-Flanagan, 1995) and marital status (i.e., single or divorced/separated; see Hayes & Rowan, 1988; Sommers-Flanagan & Sommers-Flanagan, 1995). Marked discrepancies occur across research as to which age groups are more likely to commit suicide in jails. Sommers-Flanagan and Sommers-Flanagan (1995) found that those over the age of 45 are more likely to kill themselves. In stark contrast, Hayes and Kajdin (1981) found that 75% of inmates who commit suicide are under the age of 32. However, demographic characteristics such as younger age and male gender may not be effective predictors because they are typically comparable to the proportions found in the general jail population (Hayes & Rowan, 1988).

Conflicting data are reported concerning which types of criminal charges may be more characteristic of suicidal inmates than their non-suicidal counterparts. Hayes and Rowan (1988) found that over 70% of the inmates who committed suicide were

incarcerated for nonviolent offenses. In particular, 55% were incarcerated for alcohol/drug offenses and “other” minor charges. For purposes of comparison, inmates with these types of charges account for only 37% of the general jail population in Hayes and Rowan’s (1988) research. In contrast to Hayes’s findings, Ivanoff and Jang (1991) found that inmates charged with violent offenses demonstrated significantly more suicidal ideation than their nonviolent counterparts. A possible explanation for this discrepancy is differences in sentencing guidelines between 1988 and 1995. The violent offenders in Ivanoff and Jang’s study may have anticipated longer prison sentences due to changes in criminal justice policy, such as “three strikes” laws and “truth in sentencing” reforms (Ditton & Wilson, 1999). This expectation of longer prison sentences may lead to more depression, hopelessness, and suicidal ideation. Taken together, correctional staff must be alert to suicide potential, irrespective of the charges or their perceived seriousness.

Clinical characteristics at the time of the arrest may also be predictive of suicidal inmates. The presence of a mental disorder (Sommers-Flanagan & Sommers-Flanagan, 1995; O’Leary, 1989) and intoxication (Hayes & Rowan, 1988; Hopes, 1986; O’Leary, 1989) are characteristic of those inmates who successfully commit suicide. As a salient contrast, about one-third of jail inmates are intoxicated at time of arrest, but nearly twice the percentage (i.e., 60%) of jail suicide victims were intoxicated at time of arrest (Hayes & Rowan, 1988). Special precautions are likely justified in the booking and processing of intoxicated inmates.

Other psychological factors that may provide some predictive utility in identifying suicide attempters include recent loss of resources (O’Leary, 1989; Sommers-Flanagan

& Sommers-Flanagan, 1995) and poor physical health (O'Leary, 1989; Sommers-Flanagan & Sommers-Flanagan, 1995). For example, inmates may view incarceration as a major loss in terms of freedom, social support, income, and personal safety. In addition, about 40% of all suicide completers have some significant physical health problem (Maris, 1992).

Previous suicide attempts (Hopes, 1986; Sommers-Flanagan & Sommers-Flanagan, 1995) and prior suicidal threats or verbalizations (LeBrun, 1990) are also characteristics of inmates who commit suicide. Approximately 40% of suicide completers in the general population had made at least one prior suicide attempt (Maris, 1992). Those persons who have attempted suicide in the past in order to get attention or to assume a "sick role" may utilize more lethal methods in subsequent attempts to regain these benefits (Maris, 1992). Clearly, these more serious attempts may be fatal even in cases where the inmate did not intend his or her death. Of jail suicide completers, 16% had prior suicide attempts of which jail officials knew (Hayes & Rowan, 1988).

The vast majority of research conducted on jail suicides has been limited to male inmates. However, female inmates also experience a high risk for suicidal behaviors. According to Charles, Abram, McClelland, and Teplin (2003), over half of the women in a large metropolitan jail reported at least one major risk factor for suicide (i.e., thoughts of death, wanting to die, thoughts of suicide, or previous suicide attempts). With the incarceration rate for women increasing (Greenfeld & Snell, 1999), the problem of suicidal behavior by female inmates is likely to become more common.

Conceptual Models of Inmate Suicide Risk

Several theoretical models have been developed to explain suicide risk in correctional settings. These models include stress-vulnerability, hopelessness, and cognitive models. They will be described separately in the subsequent paragraphs.

Bonner (1992) applied a stress-vulnerability model to the process of suicide in jails. He found that loneliness and irrational beliefs interacted with jail stress to best predict suicidal intention. This interaction of stress and vulnerability was more predictive of suicidal intention than depression (i.e., vulnerability) alone. Congruent with previous research that found that inmates who are single, separated, or divorced tend to commit suicide more often than their married counterparts (see Hayes & Rowan, 1988; Sommers-Flanagan & Sommers-Flanagan, 1995), loneliness and lack of social support may lead to depression and suicidal ideation.

Yufit and Bongar (1992) proposed an equilibrium hypothesis to the stress-vulnerability model. They posited that, “a healthy adaptation to change is a function of adequate coping skills predominating over the vulnerability to stress” (p. 559). When the ability to cope with negative life events, such as incarceration, diminishes, the sense of vulnerability may become overwhelming. As a result, suicide may appear to be a viable option to the current hopelessness.

Feelings of hopelessness have been repeatedly cited in the literature on suicide as the best predictor of suicidal ideation and attempts (Ivanoff & Jang, 1991; Sommers-Flanagan & Sommers-Flanagan, 1995). Acute stress and increased hopelessness appear as immediate precipitants to a suicide attempt (Weishaar & Beck, 1992).

Ivanoff and Jang (1991) propose a multivariate model of depression, hopelessness, suicidality, and social desirability in male prison inmates. This model suggests that demographic and actuarial variables (juvenile delinquency, violent crime, sentence length, negative life events, social desirability, visitors, education, income, and age) influence suicidality directly and indirectly through depression and feelings of hopelessness.

Cognitive models of suicidality posit that distortions or deficiencies in cognitive processes contribute to an individual's likelihood of attempting or completing suicide. These cognitive factors include negative thoughts, dysfunctional assumptions, dichotomous thinking, cognitive rigidity, poor problem-solving ability, and negative self-concept. For example, Clum, Patsiokas, and Luscomb (1979) postulated that life stress combined with poor problem solving leads to hopelessness, which discourages the individual from trying to solve problems. This cognitive model may be especially relevant for a subset of jail inmates, who are experiencing the marked stresses of incarceration and who likely have poor problem solving skills as possibly evidenced by their engagement in illegal activity.

Bonner and Rich (1990), consistent with the cognitive model, found that alienation, cognitive distortions, and deficient reasons for living predispose an individual to suicidal behavior. Alienation and lack of support is a primary problem for jail inmates. Cognitive distortions may magnify and catastrophize the inmates' current circumstances. These distortions may contribute to the lack of sufficient reasons for living.

Legal Issues in Jail Suicides

Jail suicides can be extremely costly to a county or municipality in terms of time, emotional stress, and financial resources. Recently, the court system has been more likely to find jails and correctional officers liable in cases of inmate suicides than in the past. In *Estelle v*. *Gamble* (1976), the Supreme Court ruled that deliberate indifference to serious medical needs of inmates violated the 8th Amendment, prohibition against cruel and unusual punishment. Subsequent court cases (e.g., *Bowring v. Godwin*, 1977) determined that mental illness falls within the domain of "serious medical illness" (O'Leary, 1989). Through these rulings, the courts have determined that jails do have an obligation to prevent jail suicides and to identify and treat serious mental disorders.

Clinical Assessment of Mental Disorders

Challenges to Clinical Management

Mentally disordered inmates pose several challenges for administrators and correctional staff. Inmates with mental disorders may be more vulnerable to assaults and other aggressive behaviors by inmates. Inmates with severe depression or psychotic symptoms are frequently unable to defend themselves in the general jail population (see Kupers, 1999).

Inmates with untreated mental illness may be more prone to aggressive behavior than other inmates while incarcerated (Kupers, 1999). They tend to have more adjustment problems, which are a significant predictor of disciplinary infractions. They may act out against correctional staff or other inmates and destroy jail property. On this point, Ditton (1999) found that 10% of mentally disordered jail inmates had been involved in two or more fights while incarcerated, nearly twice the rate of other inmates.

Correctional facility personnel are often not trained in issues of mental disorders or managing people with such disabilities (Veysey, Steadman, Morrissey, & Johnsen, 1997).

Mental Health Screens

Veysey et al. (1997) estimated that 83% of all jails in the United States provide some form of intake screening for mental disorders. However, large-scale studies by Teplin (1986, 1990) have demonstrated that the screens currently in use in correctional settings are mostly ineffective. She found that over 75% of jail inmates later diagnosed with a severe mental disorder were not identified during the routine intake procedures of a large urban jail (Teplin, 1986). In a subsequent study, Teplin (1990) discovered that only 32.5% of severely disordered jail detainees were detected by the standard screening procedure. Marked disparities were observed across diagnoses. Nearly one-half (45%) of inmates with schizophrenia were detected while very few (7.1%) of the inmates with major depression were identified. Therefore, mentally disordered inmates with obvious symptoms, such as florid hallucinations or delusions, may be more likely to be correctly diagnosed and receive treatment while inmates with major depression were routinely overlooked.

Mental health screens for corrections vary considerably across settings. In some jurisdictions standardized procedures are adopted. For example, prisons in Great Britain have adopted a mental health screen referred to cryptically as the “F2169.” However, this screen has proved ineffective; it failed to identify more than 75% of inmates with a mental disorder, even those who were actively psychotic (Birmingham et al., 2000). While jail staff cannot be expected to have a thorough knowledge of psychological

disorders, they should have access to reliable and effective screening measures. According to Teplin and Swartz (1989), jails are limited in their ability to conduct thorough mental health assessments for the following reasons: (a) length of administration time, (b) lack of trained mental health professionals, (c) required respondent reading level of paper-and-pencil screens, and (d) lack of established validity for these measures in jail settings.

The overriding requirement of jail mental health screens is that they must be easily administered by jail personnel in a short period of time. Given limited personnel, correctional staff without specialized training must be able to efficiently screen large numbers of inmates. The Referral Decision Scale (RDS; Teplin & Swartz, 1989) and the Mental Disability/Suicide Intake Screen (MDSIS; Texas Commission on Jail Standards, 1997) were developed with these goals in mind.

Screen Development

Brief psychological screening measures are designed to maximize the identification of individuals in need of further evaluation while minimizing the amount of time and resources that are needed. As with any kind of screening procedure, psychological screens must achieve a tolerable balance between the rates of false-positives and false-negatives (Robins & Marcus, 1987).

Utilizing various methods, researchers have developed brief screens for mental illness and suicidal ideation. One approach is to examine the lifetime prevalence of diagnoses; it uses relevant past episodes to predict current risk. The Diagnostic Interview Schedule (DIS), and screens such as the RDS, utilize this lifetime prevalence approach (Corrado, Cohen, Hart, & Roesch, 2000). Other measures use a problem-

centered, or functional disability, approach. These types of screens focus on current time and emphasize potentially disabling symptoms, regardless of etiology or course (Corrado et al., 2000).

Corrado and his colleagues (2000) raised a second important consideration in the development and use of a screen: the coverage of mental disorders, specifically whether its scope is narrow or broad. A narrow scope might include only the most severe disorders, such as psychosis and major mood disorders. A broad scope would include other Axis I disorders such as anxiety and dysthymia. Differences in scope can also be applied to problem-centered approaches whether narrowly (e.g., suicide attempt) or broadly (e.g., jail adjustment) construed.

A third consideration involves the clinical focus of the measure. Alternatives include symptoms, impairment, and diagnoses. Some screens, such as the Brief Psychiatric Rating Scale (BPRS; Overall & Gorham, 1962), assess for severity of specific symptoms. Others, like the Diagnostic Profile (DP; Hart & Hemphill, 1989), assess the severity more broadly across psychological syndromes and symptom clusters. Most screens, by virtue of their brevity, fall into one of these two categories. The third alternative is to screen for specific disorders and their inclusion criteria. A structured interview such as the DIS would be included in this category (Corrado et al., 2000).

Because screens are designed to be administered quickly, they often include the most salient clinical problems and symptoms of the most problematic diagnoses. Two recent examples are the Personality Assessment Screener (PAS; Morey, 1991) and the Referral Decision Scale (RDS; Teplin & Swartz, 1989).

Selective Review of Current Screens

Morey (1991) developed the Personality Assessment Screener (PAS) as a brief screen to be used in conjunction with his Personality Assessment Inventory (PAI; Morey, 1991), a multiscale inventory used to assess a wide range of clinical problems. The PAS includes 22 items grouped into 10 “elements” (i.e., domains of clinical problems) that represent the major areas of the PAI. These 10 elements are composed of negative affect, acting out, health problems, psychotic features, social withdrawal, hostile control, suicidal thinking, alienation, alcohol problem, and anger control. The PAS (Morey, 1991) uses a decisional logarithm by calculating a “P score” that reflects the probability that the respondent would manifest difficulties on a more comprehensive self-report assessment. The PAS has not been used in any published studies of inmate or forensic populations.

The RDS (Teplin & Swartz, 1989) is a brief structured interview specifically developed for use by jail personnel. The RDS was derived from the DIS, a highly structured interview designed to be administered by non-mental-health professionals (Teplin & Swartz, 1989). The RDS is diagnostically-focused, with items grouped under three categories: Schizophrenia, Bipolar Disorder, and Major Depression. The RDS focuses on these three disorders because they are among the most severe psychological disorders yet are amenable to psychopharmacological treatment. Because mental health services in jails are limited, treatment must be prioritized and often is reserved for those inmates most in need of intervention (Teplin & Swartz, 1989). These researchers utilized a discriminant analysis to identify which items from the DIS best discriminated between inmates with and without severe mental disorders.

Earthrowl and McCully (2002) described the RDS as a screening measure of the lifetime prevalence of major psychological symptoms. Therefore, results of the RDS may indicate the need for more in-depth evaluations of those inmates with histories of psychological impairment who are not currently experiencing symptoms.

Rogers, Sewell, Ustad, Reinhardt, and Edwards (1995) evaluated whether the RDS has adequate convergent or discriminant validity for use in screening specific disorders. In comparing this screen to the SADS-C and the PAI, the researchers found that the RDS may be effective as a screen of global impairment. However, the high intercorrelations among its three subscales precluded its use at detecting specific disorders. One limitation of the study was its use of mentally disordered offenders already involved in treatment who openly acknowledged their psychological problems. A non-referred sample may have yielded better discriminability.

The Mental Disability/Suicide Intake Screening (MDSIS; Texas Commission on Jail Standards, 1997) is a screen designed specifically for use with jail inmates. The MDSIS was developed by the Texas Commission on Jail Standards, the state agency that regulates county jails. Each jail facility in Texas is required by law to screen for mental disability and suicidal ideation in newly admitted inmates. The MDSIS is more problem-focused than the RDS. Besides querying for symptoms of psychosis, major depression, and mania, it also elicits information on previous suicide attempts, current suicidal ideation, and grief. The current literature search failed to uncover any published studies conducted on the psychometric properties of the MDSIS.

These three screens share the common purpose of identifying individuals in need of further psychological assessment. However, they differ in their format (interview-

based vs. self-report) and in the coverage of the items (diagnostically-focused vs. problem-focused). The comparative effectiveness of these screens will be examined in the current study.

Table 1 displays the properties and item coverage of the three screens for severe mental disorders and suicidality. Both the MDSIS and the RDS query for key symptoms of major depression, psychosis, and bipolar disorder. Of these three disorders, the PAS covers depression and psychosis. Regarding suicidality, the MDSIS provides the best coverage with both past suicide attempts and current suicidal ideation. In contrast, the PAS addresses current suicidal ideation and the RDS omits suicide issues completely. None of the three screens provide adequate coverage for three factors that have been cited in the literature as predictive of suicide attempts: hopelessness, intoxication, and impulsivity. Of potentially relevant environmental factors associated with suicide attempts, the PAS addresses the lack of social support, and the MDSIS inquires as to recent losses. As a diagnostic measure, the RDS does not address environmental issues.

Table 1

Properties and Item Coverage of the Screens for Severe Mental Disorders and Suicidality

Clinical issues identified in the literature	MDSIS	RDS	PAS
Measurement			
Format	Interview	Interview	Self-report
Level of Measurement	Categorical	Categorical	Ordinal[a]
Diagnostic Coverage			
Depression	√	√	√
Psychosis	√	√	√
Bipolar	√	√	
Clinically Relevant Symptoms			
Past suicide attempts	√		
Current suicidal ideation	√		√
Hopelessness			
Intoxication			
Impulsivity			
Environmental Issues			
Social support			√
Recent loss	√		

[a]Four gradations include False, Not at All True; Slightly True; Mainly True; and Very True.

Purpose of the Current Study

Assessment of mental disorders in jails is a crucial responsibility for correctional staff and mental health professionals. The safety of mentally disordered inmates, the jail staff, and other inmates is dependent on the accurate identification of these at-risk inmates. In addition, screening for suicidality could literally mean the difference between

life and death. Four important reasons can be enumerated for screening and subsequently assessing for mental disorders in a correctional setting. First, many inmates may respond to symptoms of mental disorders in ways that affect the prison community as a whole (e.g., acting out against correctional officers or other inmates, and destroying jail property). Second, mental disorders commonly lead to adjustment difficulties, which are a significant predictor of disciplinary infractions. Third, the effects of mental illness can be costly to the correctional system. For example, self-injurious behavior and suicide attempts incur the cost of transportation to medical facilities, one-on-one supervision, and medical and/or psychiatric treatment. In the last two decades, state and federal courts have become increasingly likely to find jails legally liable for failure to prevent custodial suicides (O'Leary, 1989). Finally, the combination of mental disorders and the stress of incarceration may cause severe and undue suffering for jail inmates (Kupers, 1999).

The current study has three main goals for the effective screening of mental disorders. First, the study is the first empirical examination of the MDSIS, testing its reliability and validity. Second, the study addresses the comparative effectiveness of the MDSIS, RDS, and PAS as clinical screens via utility estimates. Third, the research examines the effects of gender on the practical usefulness of screens.

Research Questions

1. Do mental health screens (i.e., MDSIS, PAS, RDS) have stable dimensions or factor structures?
2. Are the MDSIS, RDS, and PAS effective screens for mood disorders in a jail population?
3. Are the MDSIS, RDS, and PAS effective screens for psychotic disorders in a jail population?

4. Are the MDSIS, RDS, and PAS effective screens for suicidality in a jail population?

5. Are the MDSIS, PAS, and RDS screens equally accurate across genders in their prediction of mental disorders? As a specific hypothesis, do screens tend to underestimate the presence of psychopathology in women, as suggested by Martin et al. (1995)? Alternatively, are women overrepresented on screens, in keeping with the findings of Baskin et al. (1989)?

6. Are any individual items on the MDSIS, RDS, or PAS effective predictors of suicidality?

7. Does the Suicide Probability Scale data with jail inmates support Cull and Gill's (1988) four-factor model (Hopelessness, Suicide Ideation, Negative Self-Evaluation, and Hostility)?

CHAPTER 2

METHOD

This study was approved by the University of North Texas Institutional Review Board (IRB) on August 26, 2003. Administrative approval was also obtained from the sheriff of Grayson County to conduct the research at the Grayson County Jail.

Participants

Participants were selected from Grayson County Jail (GCJ) in Sherman, Texas. This jail is operated by the Grayson County Sheriff's Department and houses inmates who are (a) awaiting trial or sentencing on county, state, and federal charges, or (b) serving short sentences for misdemeanor-level offenses. This jail has a capacity of 382 inmates; both male and female inmates are incarcerated in GCJ.

Materials

Referral Decision Scale (RDS)

The RDS is a 14-item interview-based screen designed to be administered by jail personnel. The RDS consists of three subscales: schizophrenia, depression, and mania.

The RDS has been found to have excellent interrater reliability, with intraclass correlation coefficients ranging from .89 to .93 (Hart, Roesch, Corrado, & Cox, 1993). In comparing the RDS to the SADS-C and the PAI, Rogers et al. (1995) found that the RDS was effective for assessment of global impairment. However, the high intercorrelations among the three RDS subscales preclude its use for detecting specific disorders. This study used the RDS subscales as simple screens for when a more extensive evaluation is warranted. RDS items are listed in Appendix A.

Mental Disability/Suicide Intake Screen (MDSIS)

A 20-item questionnaire, the MDSIS (Texas Commission on Jail Standards, 1997) consists of 14 interview-based questions asked of the inmate and six observational items completed by the jail staff. Item responses and staff observations are rated on a "yes/no" categorical basis. No published studies have investigated the psychometric properties of the MDSIS. A goal of this study was to establish the reliability and utility estimates of this screen. MDSIS items are listed in Appendix B.

Personality Assessment Screener® (PAS)

Developed by Morey (1991), the PAS is a self-report rating scale used to screen for psychopathology. It consists of 22 items that are organized into 10 domains. These items are rated on a four-point Likert-type scale: *false, not at all true*; *slightly true*; *mainly true*; and *very true*. In addition, the PAS provides a total score that rates the potential for psychological problems. The ten subscales are: Negative Affect, Acting Out, Health Problems, Psychotic Features, Social Withdrawal, Hostile Control, Suicidal Thinking, Alienation, Alcohol Problem, and Anger Control.

The PAS was derived from the Personality Assessment Inventory (PAI; Morey, 1991). Internal consistency coefficients of the PAS total score have been found to range from 0.72 to 0.79 for community, clinical, and college samples. The ten orthogonal scales were derived from exploratory factor analyses. These scales characterize approximately 40% of the variance of the PAI item pool. The test-retest reliability of the total score was calculated to be .86 for community and college samples (Morey, 1991). The PAS has been validated with other psychological measures, including specific scales from the PAI and the MMPI-2 (Morey, 1991).

Suicide Probability Scale (SPS)

The SPS (Cull & Gill, 1988) is a self-report inventory for assessing suicide risk. Responses on the SPS are rated on a 4-point scale (i.e., *none or a little of the time*; *some of the time*; *good part of the time*; *most or all of the time*). The reading difficulty of the SPS is at a fourth-grade level. Its 36 items are organized into four subscales: Hopelessness, Suicide Ideation, Negative Self-Evaluation, and Hostility. Internal consistency coefficients range from .62 to .89 for the subscales; alphas for the total scale are greater than .90 (Cull & Gill, 1988). Eisenberg, Hubbard, and Epstein (1990) reported a sensitivity of 1.0 for the total scale score in determining suicidality in a large sample of Veterans Administration patients. In terms of predictive validity, the SPS has been shown to significantly predict suicide attempts, suicidal statements, and self-destructive behaviors in an adolescent sample (Larzelere, Smith, Batenhorst, & Kelly, 1996). Bagge and Osman (1998) tested Cull and Gill's four-factor model. They found that the four-factor solution was a poor fit for their data; however, their factor analysis was limited by its moderately small size and nonclinical sample of presumably well-adjusted undergraduates.

Schedule of Affective Disorders and Schizophrenia (SADS)

The SADS (Spitzer & Endicott, 1978a) is a semi structured diagnostic interview, which is designed to comprehensively assess Axis I symptoms. Specifically, the SADS assesses for symptoms of schizophrenia, depression, and mania. The SADS reliably measures symptom severity on 5 to 6 gradations: 0 indicates *no information*; 1 = *not at all*; 2 = *slight*; 3 = *mild*; 4 = *moderate*; 5 = *severe*; and 6 = *extreme severity*. Its Global

Assessment Scale (GAS) is similar to the GAF in the DSM-IV, providing an overall rating of impairment.

The SADS has several advantages over other diagnostic measures. It provides detailed information regarding the severity and duration of specific symptoms (Rogers, 2001). Interrater reliability for the SADS, even at a symptom level, is moderately high to high, 0.76 to 0.94 (Rogers, 2001). Concurrent validity with the DIS was found to be moderately high (median = 0.76; Rogers, 2001). Studies on the convergent validity of the SADS with other measures of major depression have demonstrated moderate to high convergent validity (e.g., Endicott, Cohen, Nee, Fleiss, & Sarantakos, 1981; Hurt, Friedman, Clarkin, Corn, & Aronoff, 1982; Myers & Weissman, 1980).

Procedure

The jail staff posted sign-up sheets in the housing units announcing the study and offering $5 for participation. In accordance with the University of North Texas Institutional Review Board, participants met individually with the research assistant who explained the general purpose of the study. Participants who agreed to participate were asked to provide written, informed consent. A sample of the consent form is reproduced in Appendix C.

We collected the sign-up sheets and invited the inmates to participate in the study in the order they were listed. Male and female inmates were recruited and interviewed on alternating days, in accordance with the jail staff's request. By using alternate days, female inmates were over-sampled to ensure adequate numbers for evaluating the effectiveness of screens for this population. Any inmate housed in the jail who volunteered for the study was potentially eligible to participate.

The exclusion criteria were minimal so as to increase the representativeness of the study. For valid administration of the research measures, participants were excluded if they were unable to speak and understand English or had attained a low grade level of education (below 6th grade). In addition, inmates with extreme psychopathology, such as florid psychosis, were excluded if their impairment precluded them from completing the measures. Reading level was assessed informally (a) by grade level ($\geq$ 6th grade) and (b) by asking the participant to read the first few items from the PAS aloud.

The data collection involved two phases in order to keep the individual researchers masked to the results of the screens and the interviews. For Phase 1, a bachelor's-level student collected general demographic information (e.g., date of birth, marital status, and educational level) and administered the three screens. Specifically, the MDSIS, RDS, and PAS were administered in counterbalanced order to minimize ordering effects.

I administered the SADS and the SPS in Phase 2. The SADS was administered first to build rapport and to comprehensively assess symptoms of psychopathology. The SPS, which addresses sensitive issues regarding suicide, was administered after rapport was established. As part of the experimental design, I was masked to the Phase 1 results on the three screens to prevent confirmatory bias from affecting the results.

Debriefing occurred after Phase 2; I answered any questions the participants raised about the study. At the end of each data collection session, a list of the participants was compiled. A check and this list were given to the jail staff responsible for the inmates' commissary accounts. Each participant received $5 in his or her account by the following day.

Research measures including interviews and self-report scales were administered in private rooms, typically used for attorney conferences that are located near the booking area of the jail. During interviews, the door remained closed to protect the confidentiality of the participant. The total participation time for each inmate ranged from approximately one hour to one and a half hours. Participants were given bathroom breaks if requested.

Statistical Methods

For the first hypothesis, an investigation of the factor structures of the MDSIS, PAS, and RDS, principal axis factoring (PAF analysis) with varimax rotation was conducted separately for each screen to identify the most appropriate and interpretable factor solution. Optimal factor models were selected based on the unique and substantial factor loadings and the interpretability of the solution.

The second, third, and fourth hypotheses address the effectiveness of the MDSIS, RDS, and PAS in identifying inmates with major mental disorders and suicide risk. The SADS served as the gold standard for assessing three Axis I disorders: psychotic disorders, major depression, and bipolar disorder. Classifications were based on DSM-IV-TR inclusion criteria. For purposes of the research, inmates with specific psychotic disorders (e.g., schizophrenia and delusional disorders) were subsumed into this single category. Inclusion in psychotic disorders required a DSM-IV-TR psychotic diagnosis.

Suicide risk was classified by the SPS using the assessed risk level provided by Cull and Gill (1988), which is based on the total probability score. The following utility estimates were calculated for different cut scores on subscales of the three screens:

- Positive predictive power (PPP): the likelihood that the individual at or above the cut score on a specific screen has a given disorder or condition.
- Negative predictive power (NPP): the likelihood that the individual below the cut score on a specific screen does not have the given disorder or condition.
- Sensitivity: the proportion of individuals with a disorder that will be correctly identified by the cut score on a specific screen.
- Specificity: the proportion of individuals without the disorder that will be correctly identified by the cut score on a specific screen.
- Overall correct classification (hit rate): the percentage of individuals correctly classified on a specific screen as having or not having the disorder.

Cut scores that maximize negative predictive power and sensitivity were calculated based on the distribution of screen scores. Using a screen to rule out non-mentally disordered inmates dictates that negative predictive power and sensitivity must be high so that very few cases of mental disorder are missed (Goldstein & Simpson, 2002). Positive predictive power and specificity can be partially sacrificed when establishing cut scores for screening measures. Clinically, it is preferable to conduct more evaluations than overlook a severe mental disorder or suicidality.

The fifth hypothesis addresses the accuracy of the MDSIS, RDS, and PAS across genders. To evaluate this hypothesis, the SADS and the SPS were again used as the gold standards for diagnosing Axis I disorders and classifying suicide potential. Utility estimates were calculated for the two genders separately.

The sixth hypothesis addresses individual items on the MDSIS, RDS, or PAS as predictors of suicide potential. A stepwise discriminant function analysis was performed to determine which items or cluster of items on the RDS, MDSIS, and PAS are predictive of classification as at risk for suicide as assessed by the SPS.

Finally, the seventh hypothesis addresses the factor structure of the SPS. A confirmatory factor analysis using EQS (Bentler, 1998) was conducted to test the fit of Cull and Gill's (1988) four-factor model.

CHAPTER 3

RESULTS

The sample was composed of 100 adult inmates and evenly balanced with respect to gender (49 males and 51 females). As reported in Table 2, the racial composition of the sample was 79.0% European American, 15.0% African American, 5.0% Hispanic, and 1.0% Asian American. The genders did not vary with respect to the proportion of African Americans or European Americans (X^2 [1] = .71, p > .05).

Table 2

Ethnic Representation in the Current Sample

	Males	Females	Total
Racial Distribution	*n* (%)	*n* (%)	*n* (%)
African American	6 (12.2%)	9 (17.6%)	15 (15%)
European American	41 (83.7%)	38 (74.5%)	79 (79%)
Hispanic	1 (2.0%)	4 (7.8%)	5 (5%)
Asian American	1 (2.0%)	0 (0%)	1 (1%)

Overall, the mean age was 34.09 (*SD* = 10.47) with a range from 18 to 57. No differences between genders were observed in terms of age (t [98] = .33, p > .05) or years of education (t [98] = .54, p > .05). However, gender differences were observed with respect to criminality. Male inmates reported approximately twice the number of arrests as female inmates (see Table 3). These estimates were based on self-report and were not independently verified.

Table 3

Gender Differences for Jail Inmates in Age, Education, and Arrests

	Males		Females			
	Mean	*SD*	Mean	*SD*	*t*	*p*
Age	34.45	10.09	33.75	10.92	.33	.74
Education	11.65	2.05	11.43	2.03	.54	.59
Number of arrests	12.39	11.93	6.06	5.40	3.44	.001

The Schedule for Affective Disorders and Schizophrenia (SADS) was administered to discern symptom severity of psychological disorders within the past year. Of particular interest for this study were symptoms and diagnoses of major depression, bipolar disorder, and psychotic disorder. A total of thirteen inmates, three males (6.1%) and 10 females (19.6%), warranted the current diagnosis of major depression based on the SADS. As summarized in Table 4, this gender difference is both statistically and clinically significant. No participants met criteria for a manic episode within the past year. Seventeen inmates had experienced psychotic symptoms within the past year. Of these, 10 had experienced hallucinations, seven had delusional thoughts, and two exhibited both hallucinations and delusions. No gender differences were observed for psychotic disorders.

The Suicide Probability Scale (SPS) was used to identify participants at risk of suicidal behaviors. The SPS categorizes individuals into four categories: subclinical risk (61 participants), mild risk (15 participants), moderate risk (8 participants), and severe risk (5 participants). For the current study, the two lowest risk groups (subclinical and mild) were collapsed into one “Low Risk” group. The two highest risk groups (moderate and severe) were combined into the “High Risk” group. The percentage of inmates at high suicide risk did not vary significantly by gender. Table 4 compares the percentages

of male and female inmates diagnosed with major depression and psychotic disorder and identified as high risk for suicidal behavior.

Table 4

Gender Differences for Jail Inmates in the Prevalence of Major Depression, Psychotic Disorder, and Suicidality

		Males	Females		
		n (%)	*n* (%)	X^2	*p*
SADS	Major depression	3 (6.1%)	10 (19.6%)	4.02	.05
	Psychotic disorder	8 (16.3%)	7 (13.7%)	.13	.72
SPS	High suicide risk	6 (13.3%)[a]	7 (15.9%)[b]	.12	.73

[a]Complete SPS data was available for 45 of the 49 males.
[b]Complete SPS data was available for 44 of the 51 females.

Research Question #1

Research Question #1 investigated the factor structures of the Mental Disability/ Suicide Intake Screen (MDSIS), the Referral Decision Scale (RDS), and the Personality Assessment Screener (PAS). Each screen is examined separately.

MDSIS

Exploratory factor analyses were used to determine the factor structure of the MDSIS. Eight items were excluded from the analysis due to their variances of zero. Principal axis factoring with varimax rotation was utilized on the remaining 10 items. Based on the scree plot and factors with eigenvalues > 1.0 (Tabachnick & Fidell, 1989), a three-factor model was first analyzed. This three-factor solution consists of nine substantial and unique item loadings. Using under- and over-factoring, two- and four-factor models were also specified for comparative purposes. The two-factor solution was comprised of seven unique loadings and one cross-loading. The four-factor model also produced one cross-loading which resulted in two weak factors consisting of only one unique item each. Additionally, the eigenvalue for the fourth factor (.87) was not

sufficient to warrant its inclusion. Therefore, the three-factor solution was considered optimal. Its individual items and their factor loadings are displayed in Table 5.

Table 5

Three-Factor Model of the MDSIS

	Past Mood Symptoms	Suicide/Crisis	Current Depression
1. Mental health services	.16	**.61**	.19
5a. Auditory hallucinations	.35	.10	.33
11a. Suicide attempt	.24	**.69**	.10
11b. Suicidal ideation (past)	.29	**.71**	.12
12. Suicidal ideation (current)	-.06	.14	**.56**
13a. Dysphoria (past)	**.77**	.25	.25
13b. Dysphoria (current)	.35	.19	**.53**
14. Manic symptoms (past)	**.56**	.24	-.02
15. Recent loss	**.43**	.18	.14
16. Depressed appearance (rater observation)	.28	.05	**.76**
eigenvalues	3.63	1.39	1.10
% of variance accounted for	15.76	15.70	14.19

Note. Substantial loadings (≥ .40) are presented in bold.

A description of the MDSIS factors is provided:

- Factor 1, Past Mood Symptoms (15.8% of the variance), is composed of three substantial and unique loadings. It strongly emphasizes past depressive symptoms and also includes recent losses and past manic symptoms.
- Factor 2, Suicide/Crisis (15.7% of the variance), includes three items with substantial and unique loadings. This factor is comprised of past suicidal ideation and suicide attempts as well as past interventions by mental health services.

- Factor 3, Current Depression (14.2% of the variance), also consists of three items with substantial and unique loadings. It emphasizes current depressive symptoms, including depressed appearance, suicidal ideation, and dysphoria.

RDS

The RDS's factor structure was also analyzed using principal axis factoring with varimax rotation with Kaiser normalization. In an effort to make a direct comparison with the original formulation of the RDS as consisting of three subscales (i.e., Teplin & Swartz, 1989), a three-factor solution was first specified. Two- and four-factor models were also analyzed via PAF. The two factors used only one half of the items and were difficult to interpret, given the broad range of coverage on Factor 1. An examination of the four-factor model also yielded less than optimal results, with two factors consisting of only two items. Therefore, the three-factor model was selected as providing the best factor solution for the data. Even so, five items did not load significantly on any factor, and one item, racing thoughts, cross-loaded on both the Manic Symptoms and Depressive Symptoms factors. Items and loadings for the three-factor RDS are displayed in Table 6.

Table 6

Three-Factor Model of the RDS

	Manic Symptoms	Paranoid Symptoms	Depressive Symptoms
S1. Being watched	.18	**.67**	-.03
S2. Being followed	.09	**.76**	.16
S3. Being poisoned	.17	.38	.24
S4. Thought insertion/deletion	**.41**	.17	.17
S5. Mind being read	-.07	.00	.28

(table continues)

Table 6 *(continued)*

	Manic Symptoms	Paranoid Symptoms	Depressive Symptoms
M1. Racing thoughts	**.46**	.14	**.54**
M2. Special powers	.17	.26	.36
M3. No need for sleep	**.83**	.12	.08
M4. More active/ more sex	**.42**	.21	.23
M5. Psychiatric hospitalization	**.58**	.10	.00
D1. Appetite/ weight change	.27	.14	**.62**
D2. Psychomotor changes	.36	.19	**.53**
D3. No interest in sex	.23	.36	.33
D4. Feelings of guilt, sinfulness	.31	.18	.22
eigenvalues	2.03	1.58	1.49
% of variance accounted for	14.49	11.26	10.62

Note. Substantial loadings (≥ .40) are presented in bold.

The current factor structure differs substantially from Teplin and Swartz (1989). It is described as follows:

- Factor 1, Manic Symptoms (14.5% of the variance) is composed of four unique and substantial loadings. It strongly emphasizes a subjective lack of need for sleep. It also includes past psychiatric hospitalization, racing thoughts, increased general and sexual activity, and formal thought disorder.

- Factor 2, Paranoid Symptoms (11.3% of the variance) consists of two unique and substantial item loadings, feelings of being followed and being watched.

- Factor 3, Depressive Symptoms (10.6% of the variance) includes two substantial and unique loadings. These items focus on vegetative symptoms: appetite disturbance and changes in physical activity.

PAS

Like the other screens, the factor structure of the PAS was analyzed via a PAF with Varimax rotation. In an effort to make a direct comparison with Morey's (1991) previously derived model, a 10-factor solution was first specified. Replication of that procedure with the current sample resulted in an unsatisfactory solution with the eigenvalues for three factors being less than 1.0. Further PAFs were conducted, with the number of specified factors ranging from two to nine. A seven-factor solution produced the best fit for the 22 items, with eigenvalues for all seven factors greater than 1.0. Four of the 22 items did not load on any of the factors; there were no cross-loadings in this model. Table 7 displays the item loadings for the PAS.

Table 7

Seven-Factor Model of the PAS Based on a Sample of Jail Inmates

	Absence of Positive Relations	Anxiety and Criticism	Disinhibition	Suicidal Thinking	Health Problems	Anger Control	Alcohol Problem
1. Friends are available (AN)	**.65**[a]	.09	.34	.04	.32	-.21	-.05
2. Sociable (SW)	**.69**[a]	-.02	-.27	-.06	.04	.07	.15
3. I take charge (HC)	-.32	-.17	.33	-.04	-.24	.15	-.07
4. Little things bother me (NA)	.04	**.73**	.10	.09	.03	.17	.00
5. Thought of ways to kill self (ST)	.18	.21	.27	**.69**	.21	-.05	.13
6. Worry (NA)	.01	**.87**	.03	.18	.12	.05	.06
7. People make me look bad (PF)	.34	**.49**	.34	.06	.01	-.15	-.24
8. Illegal things (AO)	-.08	.12	.39	.07	-.10	.09	.11
9. Medical problems (HP)	.03	.26	.11	.37	**.51**	-.08	-.06
10. People are faithful (AN)	.36	.10	**.42**[a]	.16	.12	-.04	-.14
11. Good health (HP)	.11	.01	-.18	.16	**.85**[a]	.15	-.05
12. Drinking causes problems (AP)	.02	.03	.16	-.17	.04	.08	**.60**
13. Illegal drugs (AO)	.28	-.13	.19	-.10	.20	.19	.17
14. People keep me from getting ahead (PF)	.12	.37	.13	-.07	.01	.10	-.36
15. Thought of suicide (ST)	.09	.05	.05	**.83**	.12	.12	-.08
16. Bad temper (AC)	.01	.33	.34	.13	.03	**.67**	-.05
17. Takes a lot to get angry (AC)	.14	.04	-.01	.00	.04	**.57**[a]	.01
18. Spend easily (AO)	-.07	.12	**.47**	.07	.04	-.15	.11
19. Make friends (SW)	**.73**[a]	.02	-.18	.20	-.06	.39	-.02
20. Happy (NA)	**.64**[a]	.21	-.05	.29	-.02	.21	.11
21. Never drink and drive (AP)	.18	-.02	-.06	.15	-.11	-.07	**.62**[a]
22. Aggressive (HC)	-.05	.01	**.59**	.02	-.04	.25	-.10
eigenvalues	2.38	2.02	1.68	1.62	1.30	1.29	1.09
% of variance accounted for	10.83	9.19	7.62	7.38	5.91	5.86	4.96

[a]Reverse-scored item

This factor solution produced four factors identical to Morey (1991) and three factors that were substantially different. The description of these factor is summarized:

- Factor 1, Absence of Positive Relations (10.8% of the variance), is composed of four substantial and unique loadings that represent impaired interpersonal relationships and associated dysphoria.
- Factor 2, Anxiety and Criticism (9.2% of the variance), consists of three substantial loadings. This factor is characterized by marked worry, becoming easily upset, and becoming unduly concerned by others' criticisms.
- Factor 3, Disinhibition (7.6% of the variance), includes three items with unique and significant loadings. These items include interpersonal problems (aggressiveness and unfaithfulness) and impulsivity in spending money.
- Factor 4, Suicidal Thinking (7.4% of the variance), is identical to Morey's factor; it is comprised of two unique items that address suicidal ideation including a consideration of suicide methods.
- Factor 5, Health Problems (5.9% of the variance), consists of two substantial loadings that are identical to Morey's factor. They include medical problems and poor health.
- Factor 6, Anger Control (5.9% of the variance) is also identical to Morey's factor. It includes two unique items, having a bad temper and a low threshold for anger.
- Factor 7, Alcohol Problem (5.0% of the variance), also parallels Morey's factor; it entails general and specific problems associated with alcohol abuse.

In addition to evaluating the factor structures of the three screens, internal consistency was also assessed via Cronbach's alpha and inter-item correlations. These values were computed for (a) the original scales of the RDS and PAS, and (b) the new factor-based scales obtained for the RDS, PAS, and MDSIS.

Internal Consistency

The internal consistency of the three screens was analyzed using Cronbach's alpha and inter-item correlations. Because the three screens are designed to assess a broad scope of disorders and problems, internal consistency statistics are lower than would be expected for a measure assessing one disorder or domain.

The original scales of the RDS and PAS were evaluated using alphas and inter-item correlations. The alpha for the RDS total scale (.82) was similar to that found in previous research (.78; Rogers et al., 1995). In the current study, alphas for RDS subscales were found to range from .54 to .69. This range is slightly smaller than the range of alpha values (.44 to .68) reported by Rogers et al. (1995) and the range (.51 to .72) reported by Hart et al. (1993). Mean inter-item correlations for RDS scales have not been reported in any previous research. As noted in Table 8, the inter-item correlations were in the accepted range for the RDS.

Alpha values for the PAS ranged markedly from .24 to .78; the alpha for the total scale was .74. These values are fairly consistent with Morey's (1991) range of reported alphas (.34 to .67 for the subscales; .75 for the total scale). A larger range of mean inter-item correlations was observed for PAS subscales in the current sample (.10 to .64) than in Morey's reliability studies (.17 to .53). Table 8 displays the alpha values and mean inter-item correlations of the PAS from the current study and compares them to previous research.

Table 8

Alpha Coefficients and Inter-item Correlations for the RDS and PAS Based on Original Subscales

		Current Study		Past Research	
	# of items	Alpha	*M* Inter-item *r*	Alpha	*M* Inter-item *r*
RDS	14	.82	.23	.78[a]	
RDS-Schizophrenia	5	.54	.19	.68[a]; .72[b]	
RDS-Mania	5	.69	.31	.44[a]; .51[b]	
RDS-Depression	5	.63	.26	.48[a]; .54[b]	
PAS	22	.74	.11	.75[c]	.14[c]
NA	3	.68	.42	.60	.34
AO	3	.24	.10	.37	.17
HP	2	.67	.51	.64	.50
PF	2	.67	.50	.59	.42
SW	2	.64	.47	.65	.48
HC	2	.44	.29	.60	.43
ST	2	.78	.64	.68	.53
AN	2	.60	.43	.51	.34
AP	2	.52	.35	.34	.29
AC	2	.55	.38	.53	.36

Note. NA = Negative Affect; AO = Acting Out; HP = Health Problems; PF = Psychotic Features; SW = Social Withdrawal; HC = Hostile Control; ST = Suicidal Thinking; AN = Alienation; AP = Alcohol Problem.
[a]Alphas as reported by Rogers et al. (1995).
[b]Alphas as reported by Hart et al. (1993).
[c]Alphas and inter-item *r*s as reported by Morey (1991) based on a community sample.

Alphas and inter-item correlations were also computed for the revised scales of the RDS, PAS, and MDSIS as determined by exploratory factor analysis. The revised subscales of the RDS produced slightly higher alphas than the original scales, ranging from .62 to .70. Alphas also increased for the revised PAS subscales, achieving levels between .50 and .78. Previously unreported, the alpha level for the total MDSIS scale was moderately high at .77, with individual subscale alphas ranging from .65 to .76. Table 9 displays the alphas and mean inter-item correlations for the total MDSIS scale and subscales as derived from exploratory factor analysis.

Table 9

Alpha Coefficients and Inter-item Correlations for the RDS, MDSIS, and PAS Scales Based on Exploratory Factor Analysis

	# of items	Alpha	*M* Inter-item *r*
RDS	8	.75	.27
Paranoid	2	.70	.54
Manic[a]	4	.66	.28
Depressive[a]	2	.62	.42
MDSIS	9	.77	.19
Past Mood Symptoms	3	.65	.38
Suicide/Crisis	3	.76	.51
Current Depression	3	.67	.41
PAS	18	.76	.15
Absence of Positive Affect	4	.73	.40
Anxiety and Criticism	3	.73	.47
Disinhibition	3	.50	.25
Suicidal Thinking	2	.78	.64
Health Problems	2	.67	.51
Anger Control	2	.55	.38
Alcohol Problem	2	.52	.35

[a]Only unique items were used to compute these factor-derived scales.

The next three research questions examine the effectiveness of the three screens in identifying inmates with mood and psychotic disorders and suicidality. For each screen, cut scores and utility estimates were calculated. As noted in the Methods section, diagnoses using DSM-IV-TR (APA, 2000) diagnostic criteria were rendered for major depressive disorder, bipolar disorder, and psychotic disorder, encompassing specific diagnoses. For major depression and psychotic disorder, utility estimates were based on the presence or absence of the DSM-IV-TR diagnoses. No participants met the criteria for bipolar disorder; therefore, utility estimates could not be calculated for bipolar disorder. For suicidality, participants were classified as low risk or high risk by

the SPS. As described previously, NPP and sensitivity were maximized to ensure that very few individuals with a mental disorder are missed by the screens.

Research Question #2

The second research question examined the effectiveness of the MDSIS, RDS, and PAS as screens for mood disorders in a jail population. As before, each screen will be examined separately.

MDSIS

MDSIS-Depression items consist of past and current episodes of dysphoria and suicidal ideation, in addition to past psychiatric hospitalization, recent losses, and depressed appearance (i.e., items 1, 11a, 11b, 12, 13a, 13b, 15, and 16). A cut score of $\geq$ 1 for depression maximizes both NPP and sensitivity at 1.00. At this cut score, the MDSIS correctly classifies 43% of the sample in terms of major depression. Increasing the cut score to $\geq$ 2 improves the overall correct classification rate to 61%, but decreases the sensitivity to .92. Table 10 illustrates the utility estimates for the various cut scores.

Table 10

Utility Estimates of the MDSIS-Depression Items as a Screen for a Diagnosis of Major Depression on the SADS

Cut score	PPP	NPP	Sensitivity	Specificity	Overall correct classification
$\geq$ 1	.19	1.00	1.00	.35	.43
$\geq$ 2	.24	.98	.92	.56	.61
$\geq$ 3	.27	.94	.69	.72	.72
$\geq$ 4	.30	.92	.54	.82	.78
$\geq$ 5	.43	.92	.46	.91	.85

Note. PPP = Positive Predictive Power; NPP = Negative Predictive Power.

RDS

Five items comprise the Depression Scale of the RDS. These items include appetite/weight changes, psychomotor disturbances, decreased interest in sex, feelings of guilty, and a history of psychiatric hospitalization (i.e., Depression items 1 through 5). A cut score of $\geq$ 2 for major depression was recommended by Teplin and Swartz (1989). It yielded high negative predictive power (.96), a moderately high sensitivity (.85), and correctly classified 54% of the sample. Decreasing the cut score to $\geq$ 1 for depression maximizes sensitivity at 1.0, but decreases the overall classification rate to 34%. Utility estimates for the different cut scores are summarized in Table 11.

Table 11

Utility Estimates of the RDS-Depression Items as a Screen for a Diagnosis of Major Depression on the SADS

Cut score	PPP	NPP	Sensitivity	Specificity	Overall correct classification
$\geq$ 1	.17	1.00	1.00	.24	.34
$\geq$ 2	.20	.96	.85	.49	.54
$\geq$ 3	.23	.91	.54	.72	.70
$\geq$ 4	.30	.91	.46	.84	.79

The Negative Affect (NA) scale of the PAS consists of three items that cover being easily bothered, worried, and unhappy (i.e., items 4, 6, and 20). Unlike the MDSIS and RDS, these items are scored on a four-point scale, yielding a greater range of cut scores. A cut score of $\geq$ 6 for depression maximizes sensitivity (.92) and NPP (.99) and correctly classifies 80% of the sample. Increasing the cut score to $\geq$ 7 marginally increases the classification rate to 85%, but greatly sacrifices the level of sensitivity (.62). Table 12 displays the utility estimates for the PAS-NA scale in identifying cases of depression.

Table 12

Utility Estimates of the PAS-Negative Affect Items as a Screen for a Diagnosis of Major Depression on the SADS

Cut score	PPP	NPP	Sensitivity	Specificity	Overall correct classification
≥ 3	.17	.97	.92	.32	.40
≥ 4	.24	.98	.92	.56	.61
≥ 5	.30	.98	.92	.68	.71
≥ 6	.39	.99	.92	.78	.80
≥ 7	.44	.94	.62	.89	.85

Research Question #3

The next research question examines the three screens' utility estimates in identifying cases of psychotic disorders as determined by the SADS.

MDSIS

Four items on the MDSIS assess for symptoms of psychosis. One item queries for auditory hallucinations; the other three are observational items assessing unusual speech and behavior, confusion, and delusional beliefs (items 5, 6, 7, and 9). At a cut score of ≥ 1, the highest level of sensitivity achieved for this sample was .73 for psychotic disorders. Utility estimates for the MDSIS psychosis items in screening for psychotic disorder are displayed in Table 13.

Table 13

Utility Estimates of the MDSIS-Psychotic Items as a Screen for a Diagnosis of Psychotic Disorder on the SADS

Cut score	PPP	NPP	Sensitivity	Specificity	Overall correct classification
≥ 1	.30	.94	.73	.69	.70
≥ 2	1.00	.92	.53	1.00	.93
≥ 3	1.00	.87	.13	1.00	.87

RDS

RDS-Schizophrenia items focus on paranoid symptoms and delusions of mind reading and thought insertion (items 1 through 5). Unlike the MDSIS, the RDS does not address hallucinations, or disorganized thinking and behavior. At a cut score of ≥ 1 for psychotic disorder, a moderately high sensitivity was achieved with the RDS (.87). However, the overall correct classification rate of the RDS (53%) was substantially lower than that of the MDSIS (70%). Table 14 displays the utility estimates for the RDS-Schizophrenia scale.

Table 14

Utility Estimates of the RDS-Schizophrenia Items as a Screen for a Diagnosis of Psychotic Disorders on the SADS

Cut score	PPP	NPP	Sensitivity	Specificity	Overall correct classification
≥ 1	.22	.95	.87	.47	.53
≥ 2	.36	.96	.80	.75	.76
≥ 3	.53	.93	.60	.91	.86
≥ 4	.75	.88	.20	.99	.87

PAS

Two items (7 and 14) covering paranoid ideation comprise the PAS Psychotic Features scale. Its items are scored from 0 to 3 with total scores ranging from 0 to 6. At a cut score of ≥ 1 for psychotic disorder, the PAS-Psychotic Features scale achieved only moderate sensitivity at .73. In addition, its PPP at .18 is very modest. Its overall correct classification was dramatically lower (46% vs. 70%) than the MDSIS. Table 15 displays the utility estimates for the various cut scores.

Table 15

Utility Estimates of the PAS-Psychotic Features Scale as a Screen for a Diagnosis of Psychotic Disorder on the SADS

Cut score	PPP	NPP	Sensitivity	Specificity	Overall correct classification
$\geq$ 1	.18	.90	.73	.41	.46
$\geq$ 2	.21	.88	.53	.63	.62
$\geq$ 3	.35	.89	.40	.87	.80
$\geq$ 4	.27	.86	.20	.91	.80

Research Question #4

The next research question examines the three screens' effectiveness in identifying inmates at high risk for suicidal behavior. The SPS was used to determine participants' probability of suicidal behavior. As noted in the Methods chapter, the two lowest risk groups (Subclinical and Mild) were collapsed into the "Low Risk" group. The two highest risk groups (Moderate and Severe) were combined into the "High Risk" group.

MDSIS

Four items on the MDSIS target behaviors and thoughts relating to suicidal behavior. These questions (i.e., items 1, 11a, 11b, and 12) cover previous crisis-intervention, past suicide attempts and thoughts, and current suicidal ideation.

A cut score of $\geq$ 2 for high risk of suicidal behavior yielded high levels of negative predictive power (0.97) and sensitivity (0.85). Table 16 illustrates the utility estimates for various cut scores on the MDSIS-Suicide Scale for identifying inmates at high risk of suicidal behavior as categorized by the SPS.

Table 16

Utility Estimates of the MDSIS-Suicide Scale for Identifying Inmates at High Risk for Suicidal Behavior

Cut score	PPP	NPP	Sensitivity	Specificity	Overall correct classification
≥ 1	.32	1.00	1.00	.63	.69
≥ 2	.42	.97	.85	.80	.81
≥ 3	.39	.90	.39	.90	.82

RDS

Although the RDS was created for use specifically in jail screenings, it does not include any items that directly address past or current suicidality. However, items from the Depression scale may have utility in identifying inmates at risk for suicide. A cut score of ≥ 2 yielded a sensitivity of 1.0 and negative predictive power of 1.0. Table 17 illustrates the utility estimates of the RDS-Depression Scale across the possible cut scores for identifying inmates at risk for suicide.

Table 17

Utility Estimates of the RDS-Depression Scale for Identifying Inmates at High Risk for Suicidal Behavior

Cut score	PPP	NPP	Sensitivity	Specificity	Overall correct classification
≥ 1	.19	1.00	1.00	.26	.37
≥ 2	.27	1.00	1.00	.54	.61
≥ 3	.31	.92	.62	.76	.74
≥ 4	.38	.90	.46	.87	.81

PAS

The two items on the Suicidal Thinking (ST) scale inquire about past suicidal thoughts. Using Morey's (1991) recommended cut score of ≥ 2 for high risk of suicidal behavior on the ST scale resulted in high negative predictive power (0.95) but only a

moderate sensitivity (0.77). Table 18 summarizes the utility estimates for the PAS ST scale in identifying inmates at risk for suicidal behavior.

Table 18

Utility Estimates of the PAS-Suicidal Thinking Scales for Identifying Inmates at High Risk for Suicidal Behavior

Cut score	PPP	NPP	Sensitivity	Specificity	Overall correct classification
≥ 1	.33	.96	.85	.71	.73
≥ 2	.42	.95	.77	.81	.81
≥ 3	.74	.92	.54	.89	.84
≥ 4	.55	.91	.46	.93	.86

Research Question #5

The fifth research question addresses the effectiveness of the three screening measures across genders. Utility estimates were calculated for each screen's ability to identify males and females in the areas of depression, suicide risk, and psychotic features. Given the small numbers, the utility estimates require cross-validation.

MDSIS

On the MDSIS, a cut score of ≥ 2 for major depression maximizes sensitivity (1.0) for male inmates. Interestingly, a lower cut score of ≥ 1 is needed to achieve this same level of sensitivity for females. Utility estimates for each gender on the MDSIS-Depression scale are displayed in Table 19.

Table 19

Utility Estimates of the MDSIS-Depression Scale in Identifying Cases of Major Depression across Genders

	PPP		NPP		Sensitivity		Specificity		Overall Correct Classification	
Cut Score	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
≥ 1	.10	.26	1.00	1.00	1.00	1.00	.39	.29	.43	.43
≥ 2	.12	.38	1.00	.96	1.00	.90	.50	.63	.53	.69
≥ 3	.13	.39	.97	.91	.67	.70	.72	.73	.71	.73
≥ 4	.10	.46	.95	.90	.33	.60	.80	.83	.78	.78

Note. To achieve optimum sensitivity, a cut score of ≥ 2 is proposed for males and ≥ 1 for females.

RDS

Like the MDSIS, a cut score for males of ≥ 2 for major depression on the RDS-Depression scale maximizes sensitivity (1.0) and NPP (1.0). Maintaining this cut score for females decreases sensitivity to 0.80 and NPP to 0.91. Therefore, a lower cut score of ≥ 1 is required to achieve the same levels of both sensitivity (1.0) and NPP (1.0) for females as for males. Table 20 displays the utility estimates for possible cut scores across genders.

Table 20

Utility Estimates of the RDS-Depression Scale in Identifying Cases of Major Depression across Genders

	PPP		NPP		Sensitivity		Specificity		Overall Correct Classification	
Cut Score	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
≥ 1	.08	.26	1.00	1.00	1.00	1.00	.20	.29	.25	.43
≥ 2	.12	.28	1.00	.91	1.00	.80	.50	.49	.53	.55
≥ 3	.08	.33	.94	.88	.33	.60	.74	.71	.71	.69
≥ 4	.11	.46	.95	.88	.33	.50	.83	.85	.80	.78

Note. To achieve optimum sensitivity, a cut score of ≥ 2 is proposed for males and ≥ 1 for females.

PAS

The PAS-Negative Affect showed a deficit in its ability to identify males with

depression. The cut score of ≥ 6 for major depression yielded only a moderate sensitivity (.67) for male inmates. In contrast, the same cut score was much more effective with female inmates (sensitivity = 1.00; NPP = 1.00) with a moderate level of efficiency (PPP = .56). At this cut score, the overall correct classification rate was 76% for males and 84% for females.

Table 21

Utility Estimates of the PAS-Negative Affect Scale in Identifying Cases of Major Depression across Genders

	PPP		NPP		Sensitivity		Specificity		Overall Correct Classification	
Cut Score	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
≥ 3	.06	.27	.93	1.00	.67	1.00	.30	.34	.33	.47
≥ 4	.08	.39	.96	1.00	.67	1.00	.52	.61	.53	.69
≥ 5	.12	.44	.97	1.00	.67	1.00	.67	.68	.67	.75
≥ 6	.15	.56	.97	1.00	.67	1.00	.76	.80	.76	.84
≥ 7	.00	.67	.93	.95	.00	.80	.87	.90	.82	.88

Each screen was evaluated in terms of its ability to detect male and female inmates with psychotic disorders. The MDSIS performed poorly for both genders. The highest levels of sensitivity were achieved with a cut score ≥ 1 for psychotic disorder: 0.75 (males) and 0.71 (females). Interestingly, a cut score of ≥ 2 was moderately effective at classifying psychotic disorders among female inmates with its PPP of 1.00 and sensitivity of .71.

Table 22

Utility Estimates of the MDSIS-Psychosis Scale in Identifying Cases of Psychotic Disorders across Genders

	PPP		NPP		Sensitivity		Specificity		Overall Correct Classification	
Cut Score	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
≥ 1	.32	.28	.93	.94	.75	.71	.68	.71	.69	.71
≥ 2	1.00	1.00	.89	.96	.38	.71	1.00	1.00	.90	.96

The RDS proved to be more effective than the MDSIS in identifying female inmates with psychosis. At a cut score of ≥ 1 for psychotic disorder, sensitivity and NPP were both estimated at 1.00. However, for males at this same cut score, sensitivity was only 0.75. A large difference was observed in terms of the overall correct classification rate for males and females. At a score of ≥ 1, two-thirds of the females were correctly classified, while only 39% of the males accurately identified.

Table 23

Utility Estimates of the RDS-Schizophrenia Scale in Identifying Cases of Psychotic Disorders across Genders

	PPP		NPP		Sensitivity		Specificity		Overall Correct Classification	
Cut Score	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
≥ 1	.18	.29	.87	1.00	.75	1.00	.32	.61	.39	.67
≥ 2	.30	.46	.93	.97	.75	.86	.66	.84	.67	.84
≥ 3	.50	.57	.92	.93	.63	.57	.88	.93	.84	.88
≥ 4	1.00	.50	.87	.88	.25	.14	1.00	.98	.88	.86

The PAS also performed poorly for both genders in identifying cases of psychosis. At a cut score of ≥ 1 for psychotic disorder, sensitivity was substantially higher for females (0.86) than for males (0.63). Like the RDS, the overall classification rate was poorer for males (38%) than for females (53%).

Table 24

Utility Estimates of the PAS-Psychotic Features Scale in Identifying Cases of Psychotic Disorders across Genders

	PPP		NPP		Sensitivity		Specificity		Overall Correct Classification	
Cut Score	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
≥ 1	.16	.21	.81	.96	.63	.86	.33	.48	.38	.53
≥ 2	.20	.21	.86	.91	.50	.57	.60	.66	.58	.65
≥ 3	.40	.33	.86	.92	.25	.57	.93	.82	.81	.78

Finally, the three screens were evaluated by gender in terms of their utility estimates for identifying inmates at high risk for suicide. For females on the MDSIS-Suicide/Crisis scale, a cut score of ≥ 2 for high risk of suicidal behavior maximized both sensitivity and NPP (1.00), and provided an excellent overall correct classification rate (84%). For males, a lower cut score of ≥ 1, which maximized sensitivity at 1.00, produced a lower correct classification rate of 67%.

Table 25

Utility Estimates of the MDSIS-Suicide/Crisis Scale in Identifying Cases of High Suicide Risk across Genders

	PPP		NPP		Sensitivity		Specificity		Overall Correct Classification	
Cut Score	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
≥ 1	.29	.35	1.00	1.00	1.00	1.00	.62	.65	.67	.71
≥ 2	.33	.50	.94	1.00	.67	1.00	.80	.81	.78	.84
≥ 3	.40	.38	.90	.89	.33	.43	.92	.87	.84	.80

On the RDS-Depression scale a cut score of ≥ 2 for high risk of suicidal behavior maximized sensitivity and NPP (1.00) for both males and females. However, the overall classification rates were lower than with the MDSIS: 60% for males and 61% for females. Increasing the cut score to ≥ 3 dramatically decreased sensitivity for males (0.33), but remained moderately high for females (.86). Clearly, gender-specific cut scores could be considered for high risk of suicidal behavior.

Table 26

Utility Estimates of the RDS-Depression Scale in Identifying Cases of High Suicide Risk across Genders

	PPP		NPP		Sensitivity		Specificity		Overall Correct Classification	
Cut Score	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
≥ 2	.25	.29	1.00	1.00	1.00	1.00	.54	.54	.60	.61
≥ 3	.17	.43	.88	.97	.33	.86	.74	.78	.69	.80

The maximum sensitivities for the PAS-Suicidal Thinking scale were lower for both males and females compared to the other two screens. For males, the highest sensitivity obtained was .83 at a cut score of ≥ 1 for high risk of suicidal behavior. For female inmates, a cut score of ≥ 2 proved more effective with sensitivity of .86, NPP of .97, and PPP of .55.

Table 27

Utility Estimates of the PAS-Suicidal Thinking Scale in Identifying Cases of High Suicide Risk across Genders

	PPP		NPP		Sensitivity		Specificity		Overall Correct Classification	
Cut Score	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
≥ 1	.25	.46	.96	.97	.83	.86	.61	.81	.64	.82
≥ 2	.31	.55	.94	.97	.67	.86	.76	.87	.75	.86
≥ 3	.29	.63	.89	.94	.33	.71	.87	.92	.80	.89

Research Question #6

The sixth hypothesis addresses individual items on the MDSIS, RDS, or PAS as predictors of suicide potential. The SPS was used to determine participants' probability of suicidal behavior. Based on their probability scores, participants were identified as Low Risk or High Risk for suicidal behavior. A stepwise discriminant function analysis was performed to determine which items or cluster of items on the RDS, MDSIS, and PAS are predictive of classification as high risk for suicide, as assessed by the SPS.

First, each screen was evaluated independently for discriminating items between low risk and high risk for suicidal behavior. The discriminant function for the RDS was significant (Wilks' lambda = .805, X^2 = 18.61, p < .001) with a canonical correlation of .44. The overall classification rate of the RDS was 82.0%, correctly identifying 86.8% of the low-risk group and 53.8% of the high-risk group. The two items used in the

discriminant analysis were racing thoughts (Mania Scale #1; canonical loading = .87) and feelings of sinfulness and guilt (Depression Scale #4; canonical loading = .61).

Table 28

Discriminant Function Analysis of RDS Scores: Classifying Inmates as High or Low Risk for Suicide

	Actual group	
Predicted group membership	Low risk (*n* = 76)	High risk (*n* = 13)
Low risk	66 (86.8%)	6 (46.2%)
High risk	10 (13.2%)	7 (53.8%)
Canonical correlation	Wilks' lambda	*p*
0.441	0.805	<0.001

Percentage of cases correctly classified: 82.0%

The MDSIS produced a significant discriminant function for high vs. low risk of suicide (Wilks' lambda = .66, X^2 = 35.91, p < .001) with a canonical correlation of .59. The overall classification rate was high at 86.5%. It correctly identified 93.4% of the low-risk group but only 46.2% of the high-risk group. Three items from the MDSIS were used in the discriminant function: history of suicidal thoughts (#11b; canonical loading = .73), currently feeling down (#13b; canonical loading = .65), and past episodes of manic symptoms (#14; canonical loading = .59).

Table 29

Discriminant Function Analysis of MDSIS Scores: Classifying Inmates as High or Low Risk for Suicide

	Actual group	
Predicted group membership	Low risk (*n* = 76)	High risk (*n* = 13)
Low risk	71 (93.4%)	7 (53.8%)
High risk	5 (6.6%)	6 (46.2%)
Canonical correlation	Wilks' lambda	*p*
0.586	0.657	<0.001

Percentage of cases correctly classified: 86.5%

The discriminant function for suicidality on the PAS was also significant (Wilks' lambda = .69, X^2 = 29.54, p < .001) with the canonical correlation of .55 and a high overall classification rate of 89.7%. It correctly identified almost all (95.9%) of the low-risk group but only 53.8% of the high-risk group. The three items used in the discriminant function were past suicidal thoughts (#5; canonical loading = .78), paranoid thoughts (#7; canonical loading = .60), and being perceived by others as aggressive (#22; canonical loading = .43).

Table 30

Discriminant Function Analysis of PAS Scores: Classifying Inmates as High or Low Risk for Suicide

	Actual group	
Predicted group membership	Low risk (*n* = 74)	High risk (*n* = 13)
Low risk	71 (95.9%)	6 (46.2%)
High risk	3 (4.1%)	7 (53.8%)
Canonical correlation	Wilks' lambda	*p*
0.554	0.693	<0.001

Percentage of cases correctly classified: 89.7%

A combined step-wise discriminant analysis used eight items from the three screens that demonstrated the best discriminability. The discriminant function used four of these variables: two items addressed past suicidal thoughts (PAS #5 and MDSIS #11b). The remaining two items suggested interpersonal issues: paranoid thoughts (PAS #7), and being perceived by others as aggressive (PAS #22). The combination of these four items correctly classified 90.8% of the total sample, 97.3% of the low-risk group, and 53.8% of the high-risk group. Not surprisingly, these results are very similar to the PAS from which three of the four predictors were selected.

Table 31

Discriminant Function Analysis of Items across the Three Screens: Classifying Inmates as High or Low Risk for Suicide

	Actual group	
Predicted group membership	Low risk (*n* = 74)	High risk (*n* = 13)
Low risk	72 (97.3%)	6 (46.2%)
High risk	2 (2.7%)	7 (53.8%)
Canonical correlation	Wilks' lambda	*p*
0.620	0.616	<0.001

Percentage of cases correctly classified: 90.8%

Table 32 displays the discriminant function coefficients and the structure correlations for the variables in the DFA. As expected, suicidal thoughts (PAS #5 and MDSIS #11b) were the strongest predictors of current risk for suicidal behavior.

Table 32

Discriminant Function Coefficients and Structure Correlations for DFA Items Classifying Inmates at Risk for Suicidal Behavior

Item	Discriminant function coefficients	Structure correlations
Past suicidal thoughts (MDSIS #11b)	.48	.69
Past suicidal thoughts (PAS #5)	.44	.72
Paranoid thoughts (PAS #7)	.38	.46
Perception by others as aggressive (PAS #22)	.44	.41

Items from the three screens, both individually and combined, produced low correct classification rates for the group at high risk for suicidal behavior. Only 53.8% of the high-risk group was correctly identified by the DFA. Because differences had been observed in suicidality between genders, separate discriminant function analyses were conducted for males and females. As with the total sample, each screen was first evaluated individually. Items which entered each discriminant function were then combined in an additional discriminant analysis. Separating the sample by gender yielded high-risk groups that consisted of small numbers of inmates (six males and seven females). While these group sizes are small, discriminant analyses may be performed as long as the smallest group exceeds the number of variables by more than two (Klecka, 1980; Tabachnick & Fidell, 1989).

Interestingly, no overlap was observed in the sets of items for classifying the two genders as high or low risk for suicide. For male inmates, the combination of MDSIS item 11b (thoughts of suicide), PAS item 7 (feelings of persecution), and PAS item 20 (negative self-perception) discriminated best between the high-risk and low-risk groups (Wilks' lambda = .56, X^2 = 23.75, p < .001) and correctly classified 97.8% of the male sample.

Table 33

Discriminant Function Analysis of Items across the Three Screens: Classifying Male Inmates as High or Low Risk for Suicide

	Actual group	
Predicted group membership	Low risk (*n* = 39)	High risk (*n* = 6)
Low risk	38 (97.4%)	0 (0%)
High risk	1 (2.6%)	6 (100%)
Canonical correlation	Wilks' lambda	*p*
0.660	0.564	<0.001

Percentage of cases correctly classified: 97.8%

An inspection of the loadings revealed that past suicidal thoughts (MDSIS #11b) comprised the largest unique contribution to the discrimination between low-risk and high-risk male inmates in terms of suicidal behavior. The item related to depression (PAS #20) was moderately correlated while paranoid thoughts (PAS #7) had only a low moderate correlation. The discriminant function coefficients and structure correlations for the three variables are shown in Table 34.

Table 34

Discriminant Function Coefficients and Structure Correlations for DFA Items Classifying Male Inmates at Risk for Suicidal Behavior

Item	Discriminant function coefficients	Structure correlations
Past suicidal thoughts (MDSIS #11b)	.72	.56
Unhappy and negative (PAS #20)	.69	.50
Paranoid thoughts (PAS #7)	.66	.39

Discriminating between high- and low-risk female inmates required an entirely different set of predictor variables than for male inmates. For female inmates, the

combination of PAS item 5 (thoughts of suicide), PAS item 22 (perception by others as aggressive), RDS-Schizophrenia item 3 (beliefs of being poisoned or plotted against), and MDSIS item 13b (dysphoria) discriminated best between the high-risk and low-risk groups (Wilks' lambda = .27, X^2 = 53.01, p < .001) and correctly classified 95.5% of the female sample.

Table 35

Discriminant Function Analysis of Items across the Three Screens: Classifying Female Inmates as High or Low Risk for Suicide

	Actual group	
Predicted group membership	Low risk (n = 37)	High risk (n = 7)
Low risk	35 (94.6%)	0 (0%)
High risk	2 (5.4%)	7 (100%)
Canonical correlation	Wilks' lambda	p
0.86	0.27	<0.001

Percentage of cases correctly classified: 95.5%

An unexpected finding is that the two items with the highest discriminant function coefficients do not appear to be associated with either depression or suicide. Being perceived by others as aggressive (PAS #22) and paranoid beliefs (RDS-Schizophrenia #3) comprised the largest unique contributions to the discrimination between low-risk and high-risk female inmates in terms of suicidal behavior. Current dysphoria (MDSIS #13b) and suicidal ideation (PAS #5) also contributed moderately in discriminating female inmates at high risk for suicide. The discriminant function coefficients and structure correlations for the four variables are displayed in Table 36.

Table 36

Discriminant Coefficients and Structure Correlations for DFA Items Classifying Female Inmates at Risk for Suicidal Behavior

Item	Discriminant Function Coefficients	Structure Correlations
Aggression (PAS #22)	.69	.38
Paranoid thoughts (RDS-Schizophrenia #3)	.62	.48
Current dysphoria (MDSIS #13b)	.48	.40
Past suicidal ideation (PAS #5)	.46	.54

Research Question #7

The final research question seeks to replicate Cull and Gill's (1988) four-factor solution of the SPS through confirmatory factor analysis (CFA) via EQS (Bentler, 1998). The results of the CFA must be interpreted with caution due to the small sample size. However, the fit for Cull and Gill's model was poor (X^2 [588] = 1056.49, $p < .001$). As summarized in Table 37, none of the relative fit indices came close to the minimum standard of $\geq$ .90. Appendix B summarizes the factor loadings and error terms for the CFA. The absolute fit index of .10 also indicates a poor fit.

Table 37

Confirmatory Factor Analysis of the Suicide Probability Scale: Goodness of Fit Estimates

CFA Model	Factors	X^2	*p*	NFI	NNFI	CFI	RCFI	RMSEA
Cull & Gill (1988)	4	1056.49	.001	.44	.60	.63	.71	.10

Exploratory factor analyses were then performed in an attempt to describe the underlying factor structure in this population. Initially, a four-factor model was specified in an attempt to make a direct comparison with Cull and Gill's model. Using Cull and Gill's (1988) method of a principal components analysis with varimax rotation produced a poor model. This four-factor solution resulted in seven cross-loading items and four

non-loading items. The results of the four-factor exploratory factor analysis are presented in Appendix B. Three- and five-factor models were also attempted; these solutions also produced numerous cross-loadings and non-loadings. An interpretable model was not attainable for the SPS with the current sample.

CHAPTER 4

DISCUSSION

Over the past few decades, clinicians and researchers have become increasingly interested in the assessment of correctional populations, as evidenced by the rapid increase in the development of forensic assessment instruments and forensically relevant instruments (Otto & Heilbrun, 2002). These evaluations have evolved into a variety of contexts: forensic assessments (e.g., competency to stand trial and criminal responsibility), risk assessments (e.g., for parole decisions or civil commitments), and mental health evaluations (e.g., for diversion programs or housing decisions).

Clinical and forensic evaluations were also extended to correctional settings. Upon intake to a correctional facility, one of the primary concerns is the presence of major mental disorders and potential for suicidal behavior. The current study examines this crucial process: assessing inmates for serious mental disorders and suicidality. Specifically, screening measures that are currently used or have the potential for use in jail settings were evaluated in terms of their factor structures, utility estimates, and accuracy across genders.

Current Practices in Screening Jail Samples

State correctional systems and regulatory agencies have begun to appreciate the use of standardized approaches for screening inmates for major psychological disorders and suicide risk (TCJS, 1997). However, the measures that are implemented are typically not subjected to a systematic examination of their psychometric properties. This lack of empirical research frequently leads to many mentally disordered inmates

not being identified as in need of further evaluation or intervention (Birmingham et al., 2000; Teplin, 1986).

The primary goal of the present study was to investigate the efficiency of the three screening measures in order to provide correctional facility administrators and correctional psychologists with objective information about the screens' psychometric properties. The next section examines the clinical potential of screens to reliably assess the psychological diagnoses and symptom clusters for which they were intended.

Development of Effective Screens

A helpful framework for evaluating psychological measures, including screens, is presented in Clark and Watson's (1995) seminal article. The three screens of interest to this study, the Referral Decision Scale (RDS), the Mental Disability/Suicide Intake Screen (MDSIS), and the Personality Assessment Screener (PAS), are discussed according to the theoretical principles and practical issues set forth in their article.

Item Development

Item development is a critical first step in the construction and validation of scales. Clark and Watson (1995) first outlined the requirements for effective items to be incorporated into a scale. They stated that the language of the items "should be simple, straightforward, and appropriate for the reading level of the scale's target population" (p. 312). National research has found that 47% of local jail inmates have not completed high school (Harlow, 2003). Additionally, educational attainment often does not parallel reading level. Klinge and Dorsey (1993) found that the average reading level for criminal offenders was at the 7.5 grade level, four years below the average school grade

completed in their sample. Therefore, simple reading comprehension is essential to correctionally-based screens.

An examination of the three correctional screens revealed major differences in reading levels. The average Flesch-Kincaid Grade Level for readability of the PAS is 3.6 with an average of 7.6 words per sentence. This simple reading level should meet the comprehension levels for most jail inmates (Klinge & Dorsey, 1993). Although the RDS and MDSIS are interview-based, the oral comprehension of the items is obviously crucial. Research has found that oral language skills are strongly correlated with reading ability (Mann, Cowin, & Schoenheimer, 1989). The Flesch-Kincaid Grade Level of the MDSIS is 4.1 (*M* = 9.1 words per sentence), indicating that it is easily comprehensible. In contrast to the other screens, the RDS requires a higher reading level at grade 7.8. Likewise its sentences are much more complex, averaging 20.3 words per sentence. While orally administered, correctional staff should be aware that the length and complexity of RDS items might be too difficult for inmates with little formal education to comprehend.

Clark and Watson (1995) also caution against including items with little or no variance, unless they are designed to assess response styles. All of the items on the RDS and the PAS demonstrated variance in the sample's responses. None of the items were highly skewed, that is, at least 95% of the sample providing the same answer. However, the MDSIS consists of several items demonstrating little or no variance. The following four items on the MDSIS have zero variance:

#2. [question] Do you know where you are?

#4. [question] How many months are there in a year?

#9. [observation] Does the individual claim to be someone else like a famous person or fictional figure?

#10a. [observation] Does the individual's vocabulary (in his/her native tongue) seem limited?

Six additional items on the MDSIS have highly skewed response distributions (i.e., more than 95% of the sample answering in one direction). Clark and Watson (1995) advised that in most cases such items should be removed because of the lack of information they convey. However, these MDSIS items assess highly relevant information for jail screens, such as obviously disturbed behavior and current suicidal ideation. Secondly, four of these highly skewed items are observation items (e.g., "Does the individual act or talk in a strange manner?") that require very little time for staff to rate. Therefore, it is recommended that these items be retained as part of the screen despite their lack of variance with the current sample.

Another concern at the item level is the presence of affectively-loaded wording. For example, an item such as, "I am worried that someone is following me" includes a negative mood term (e.g., "worried"). The inclusion of this affectively-loaded term increases the probability that individuals with substantial neuroticism will endorse the item irrespective of its content (e.g., paranoid perceptions; Clark & Watson, 1995). The items of the three screens were reviewed, and none of them contained affectively-laden wording. Instead, each screen used neutral verbs, such as "I am," "I have done," "I think," "Have you felt," "Have you ever thought." Table 38 summarizes the item properties of the three screens.

Table 38

Item Properties of the RDS, MDSIS, and PAS

Screen	Reading Level	*M* words per sentence	Inclusion of highly skewed items?	Affectively-loaded wording?
RDS	7.8	20.3	No	No
MDSIS	4.1	9.1	Yes	No
PAS	3.6	7.6	No	No

The RDS stands out as the screen with the most complex sentences and highest reading level. Its individual items range from 10 to 56 words. One way to reduce the complexity of RDS items would be to separate its longer items into several shorter questions. For example, Item 2 on the RDS-Mania scale is a complex inquiry: “Have you ever felt for a period of a week or longer that you had a special talent or powers and could do things others couldn’t or that in some way you were an especially important person?” This lengthy sentence contains 36 words and uses the conjunction “or” on three separate occasions. Not surprisingly, it achieves a Flesch-Kincaid grade level of 15.2, almost commensurate with a college education. Dividing the sentence into two items reduces the Flesch-Kincaid level to 9.9. Although substantially lower than a college reading level, this modified reading level may still be too advanced for many inmates.

The PAS is distinguished by its simple reading level and short sentences. The majority of jail inmates, even those with limited formal education, would be able to comprehend the PAS items. Also, the item response distribution indicates that none of its items are highly skewed. Based on these criteria, the PAS clearly meets Clark and Watson’s standards for reading comprehension, response variance, and neutral wording.

Scale Validation

Clark and Watson (1995) described the next step in evaluating scale properties as assessing structural validity, or "the extent to which a scale's internal structure parallels the external structure of the target trait" (p. 313). In the current study, psychological domains (i.e., depression, psychosis, and suicidality) were assessed by the three screens and compared to measures previously shown to reliably evaluate them. The computation of utility estimates was the first method used to assess structural validity of the three screens.

Utility estimates (i.e., positive predictive power, negative predictive power, sensitivity, and specificity) were calculated for the three screens in the domains of interest for this study: depression, psychotic disorder, and suicide risk. As noted previously, sensitivity was the primary utility estimate of interest. In screening inmates for severe mental disorders and suicidality, the most important consideration is to correctly identify nearly all the individuals with the disorder or problem of interest. Interestingly, each domain was most effectively screened by a different measure: the PAS for major depression, the RDS for psychotic disorders, and the MDSIS for suicide risk. Table 39 displays the sensitivity and overall correct classification rate for the three screens across the three clinical domains.

Table 39

Comparison of the RDS, MDSIS, and PAS: Utility Estimates for Depression, Suicide Risk, and Psychotic Disorder

Screen	Depression	Suicide	Psychosis
RDS			
Cut score	≥ 2	≥ 2	**≥ 2**
Sensitivity	.88	1.00	**.80**
NPP	.96	1.00	**.96**
PPP	.20	.27	**.36**
Specificity	.49	.54	**.75**
Overall correct classification	.54	.61	**.76**
MDSIS			
Cut score	≥ 2	**≥ 1**	≥ 1
Sensitivity	.92	**1.00**	.73
NPP	.98	**1.00**	.94
PPP	.24	**.32**	.30
Specificity	.56	**.63**	.69
Overall correct classification	.61	**.69**	.70
PAS			
Cut score	**≥ 6**	≥ 1	≥ 1
Sensitivity	**.92**	.85	.73
NPP	**.99**	.96	.90
PPP	**.39**	.33	.18
Specificity	**.78**	.71	.41
Overall correct classification	**.81**	.73	.46

Note. Bolded columns reflect the best screens for each diagnostic issue.

Major Depression

The depression subscales of all three screens rendered moderately high levels of sensitivity, ranging from .88 to .92. The RDS yielded moderately high sensitivity (0.88) based on Teplin and Swartz's (1989) suggested cut score of ≥ 2. This cut score yielded an acceptable balance of sensitivity (.88) and specificity (0.49). However, the overall correct classification with the RDS ≥ 2 cut score was only 54%. A cut score of ≥ 2 for depression on the MDSIS yielded slightly higher classification accuracy than the RDS, 61%. At this cut score, the most efficient balance of sensitivity and specificity was observed (.92 and .56, respectively). In terms of identifying inmates with major

depression, the PAS-Negative Affect scale achieved the highest utility estimates of the three screens. With a cut score of $\geq$ 6, the PAS produced sensitivity of 0.92, specificity of 0.78, and a remarkably good overall classification of 81%. This finding is especially useful since it cross-validates Morey's (1991) research.

The accuracy of the PAS Negative Affect (NA) scale is rather surprising, given its brevity (three items) as compared to the RDS (five items) and MDSIS (five items). Also unexpectedly, the RDS, which was developed specifically for jail populations, produced the lowest utility estimates of the three screens. As a possible explanation, the RDS-Depression scale is associated primarily with physiological symptoms of depressive disorders. In contrast, the PAS-NA scale is composed of "ideational" aspects of distress, anxiety, and unhappiness (Morey, 1991). Also, the development of the PAS emphasized predictive validity in relation to PAI scales. Therefore, items included on the PAS-Negative Affect scale were those that maximally distinguished individuals manifesting problems with depression from those without depression (Morey, 1991).

High Suicide Risk

Both the MDSIS and the PAS include items specifically addressing suicidality. Although the RDS does not include items directly assessing suicidal thoughts or behaviors, items on its depression scale proved to be highly effective in identifying inmates at high risk for suicide. Both the MDSIS and the RDS achieved sensitivity levels of 1.0, with slightly higher classification accuracy for the MDSIS (69%) than for the RDS (61%).

In addition to utility estimates, the ability of screen items to classify inmates at risk for suicide was analyzed via discriminant function analysis. The three screens were

first analyzed individually; significantly discriminating items from across the screens were then analyzed together. For the combined analysis, four items emerged as significantly discriminating between the low-risk and high-risk groups:

PAS #5	I've thought about ways to kill myself.
PAS #22	People think I'm aggressive.
MDSIS #11b	Have you ever had thoughts about killing yourself?
PAS #7	Some people do things to make me look bad.

The combination of these four items correctly classified 90.8% of the total sample. Interestingly, although three of these four variables are PAS items, the PAS-Suicidal Thinking subscale achieved only a moderate level of sensitivity in identifying inmates at risk for suicidal behavior. An examination of these items reveals that only one of them is included on the PAS Suicidal Thinking (ST) subscale. The other two are from the Hostile Control and Psychotic Features subscales. This finding indicates that the PAS-ST subscale may be improved in its predictive accuracy for jail inmates by including items targeting aggression and paranoia.

Despite the overall high classification rate of this discriminant function, almost half of the high-risk group was misidentified, suggesting that the screens may be missing some important element in identifying potentially suicidal inmates. For example, several studies (Hayes & Rowan, 1988; Hopes, 1986; O'Leary, 1989) have emphasized the importance of intoxication as a characteristic of inmates who commit suicide. Other variables that characterize jail suicides are poor physical health (O'Leary, 1989; Sommers-Flanagan & Sommers-Flanagan, 1995), hopelessness (Beck et al., 1985; Fawcett et al., 1987), and lack of social support (Bonner, 1992). An investigation into

the high misclassification rate led to an examination of gender differences in predictors of suicide. These findings are discussed in the section *Gender Issues.*

Psychotic Symptoms

Overall, the three screens performed poorly at identifying inmates with psychotic symptoms. Both the RDS and the PAS focus almost exclusively on paranoid symptoms, which may be affected by recent arrests and incarcerations. For example, items such as, “Some people do things to make me look bad” may be answered affirmatively by inmates who believe they were “set-up” or otherwise mistreated by law enforcement officers. Of the three screens, the RDS produced the highest sensitivity (0.80) and overall accuracy (0.76). One explanation for the lower levels of sensitivity on the psychotic screens is the possible reluctance of inmates to admit to bizarre symptoms such as hallucinations or delusions. Participants may have been uncomfortable disclosing severe symptoms that may be interpreted as weaknesses especially during Phase 1 of the data collection. During Phase 2, when the SADS was administered, participants may have felt more willing to disclose these problematic symptoms when presented by a mental health professional in the context of a diagnostic interview. In addition, the SADS uses both open-ended questions and specific probes to discern the presence of psychotic symptoms. In contrast, the screens were administered by a paraprofessional who followed the typical administration used in most jail settings. She presented routine questions without systematic efforts at rapport-building.

In terms of the effectiveness of the RDS, the cut scores suggested by Teplin and Swartz (1989) yielded the highest negative predictive power and sensitivity on the schizophrenia and depression scales. Increasing the cut score on the depression scale

from ≥ 2 to ≥ 3, as suggested by Hart et al. (1993) results in a marked decrease in sensitivity (from 0.85 to 0.54). Hart et al. recommended increasing the depression cut score to ≥ 3 because of the high false positive rate found with the original cut score. Utility estimates from the Hart et al. study at a cut score of ≥ 3 (PPP = .19, NPP = .98) are very similar to the current study's at a cut score of ≥ 2 (PPP = .20, NPP = .96). Thus, the current research supports the cut scores originally established for the RDS.

Scale Homogeneity

Smyth and McCarthy (1995) emphasized the central importance of scale homogeneity to maintain stability in the measurement of a construct. To assess the homogeneity and unidimensionality of the screens and their subscales, alpha coefficients and inter-item correlations were computed. Alpha coefficients are a method of assessing the proportion of a scale's total variance that is attributable to one common underlying latent variable (DeVellis, 1991). Therefore, subscales that assess one domain, such as depression, would be expected to be higher than for a scale that assesses multiple domains.

The RDS was evaluated in terms of its original structure and the PAF-derived factor solution. Of all the screens, the original 14-item RDS demonstrated the strongest internal consistency overall, in terms of both alpha coefficients (0.82) and inter-item correlation (0.23). These values meet Clark and Watson's (1995) criteria for adequate internal consistency. In the current sample, the alpha coefficients for the individual subscales were slightly higher for the PAF factor scales than for Teplin and Swartz's (1989) original categories. However, a substantial difference was observed for the mean inter-item correlations between the original and revised subscales. Correlations ranged

from .19 to .31 for the original three subscales and increased substantially to a range of .34 to .54 for the PAF factor scales. This increase suggests that the revised subscales represent more homogeneous constructs than the original subscales.

Morey (1991) established internal consistency values for the PAS using community, clinical, and college samples. In the current study, the alpha coefficients for both the original PAS total scale (.74) and the PAF-derived total scale (.76) fell slightly below Clark and Watson's (1995) recommended level of .80. Mean inter-item correlations with the current sample ranged from .10 to .64 for Morey's (1991) original subscales. The range of inter-item correlations based on the PAF factor scales did not change appreciably: .25 to .64. However, as Morey (1991) points out, the PAS was intended to screen for a wide variety of psychological problems. The brevity and breadth of the measure work against its high internal consistency.

Scale homogeneity for the MDSIS was evaluated based on the factors derived from the current EFA. The alpha level for the total scale, .77, is slightly less than the .80 level recommended by Clark and Watson (1995). However, the alpha coefficients for the MDSIS subscales (range of .65 to .76) are higher than those calculated for the RDS or PAS.

Factor Analysis

The identification of the underlying structure in a measure is a critical step in the refinement of clinical assessment instruments (Smith & McCarthy, 1995). The three screens examined in the study include subscales, based on specific disorders or symptom constellations (i.e., suicide risk). Therefore, exploratory factor analyses were

conducted to determine the underlying dimensions of these screens and their match with the intended clinical constructs.

The exploratory factor analysis of the RDS indicates that this screen partially assesses the three domains conceptualized by Teplin and Swartz (1989): schizophrenia, mania, and depression. Although several studies have examined the RDS in terms of its reliability and validity (e.g., Hart et al., 1993; Rogers et al., 1995; Veysey et al., 1998), the current research represents the first reported attempt to analyze its factor structure. Based on the present sample, the paranoia factor consists of only two items: being watched and being followed. In Teplin and Swartz's sample, only inmates meeting criteria for schizophrenia were included in the criterion group for the development of schizophrenia subscale items. The present study included participants with a broad spectrum of psychotic disorders. Therefore, Teplin and Swartz's schizophrenic group likely manifested more severe psychotic symptoms on average than the current psychotic group. This relatively low occurrence of more severe psychotic symptoms likely produced the circumscribed paranoia factor.

The revised mania factor consists of five items: four from Teplin and Swartz's original mania scale and one from the schizophrenia scale (thought insertion/deletion). However, one of these items (racing thoughts) also loaded substantially on the depression factor. The stability of this scale could not be tested because none of the participants met criteria for bipolar disorder.

The depression factor includes two items from the original depression scale (appetite/weight change and psychomotor changes) and the cross-loaded item from the manic symptoms factor. The two items from the original depression scale that did not

load on the revised depression factor addressed lack of interest in sex and feelings of guilt or sinfulness. Both of these items showed significantly skewed response distributions, indicating that most participants either did not experience these symptoms or were unwilling to endorse them. Participants may have been reluctant to admit to feelings of guilt or sinfulness due to their pending criminal charges. Despite assurances of research confidentiality, inmates may have viewed this question as potentially an admission of criminal guilt.

The MDSIS is used regularly in hundreds of county jails, yet it has never been examined empirically. The current study is the first to examine the factor structure of the MDSIS. Based on exploratory factor analysis, the MDSIS assesses symptoms and problems in three domains: past mood symptoms, suicide/crisis, and current depression. The nine items that comprise the factors have a robust mean loading of .62. Notably, psychotic features did not constitute a factor; however, the sample was constrained by the exclusion of floridly psychotic inmates.

Based on the current sample, the PAS consists of seven latent factors, three fewer than Morey's original 10-factor model. Importantly, four of these factors (suicidal thinking, health problems, anger control, and alcohol problem) are identical to Morey's factors of the same name. The item loadings on these four factors were strong (*M* loading = .67), indicating that these four domains are quite stable across different populations.

The current factor analysis indicated several domains that were different from Morey (1991). The new Absence of Positive Relations factor consists of items from Morey's original Social Withdrawal, Alienation, and Negative Affect scales. This new

factor represents impaired interpersonal relationships and associated dysphoria. The second new factor, Anxiety and Criticism addresses worry, irritability, and being concerned by others' criticism. The Anxiety and Criticism factor is comprised of items from Morey's Negative Affect and Psychotic Features scale. Items from Morey's Alienation, Acting Out, and Hostile Control scales constitute the third new factor, Disinhibition, which represents interpersonal problems and impulsivity. The small sample size likely contributed to the extraction of seven factors instead of ten. Also, the three new factors represent more general distress and impairment, which may be more salient for inmates than Morey's more specific factors.

Suicidality emerged as a factor on both the MDSIS and the PAS. Although depression and suicide are often highly correlated, they emerged as separate factors for this population on both screens. One advantage for jail management of the MDSIS over the RDS is its focus on both past and current suicidal ideation and behavior. As described earlier, suicide is a significant problem in jails, and screening for suicide risk should be a primary component of any jail intake procedure (Rakis & Monroe, 1989; Sherman & Morschauser, 1989). A second advantage of the MDSIS over both the RDS and PAS is its inclusion of observation items. As noted by Sommers-Flanagan and Sommers-Flanagan (1995), observation of an individual's behavior may confer important indicators of suicide potential. The MDSIS includes several of these important observation items, such as depressed appearance, confusion or preoccupation, and unusual psychomotor behavior. These observations may be indicative of individuals who are severely distressed or responding to psychotic symptoms. Suicidal inmates

who are unwilling to disclose their intent for self-harm may not be identified by screens which rely only on self-report items.

Besides the three screens, the Suicide Probability Scale (SPS) was also evaluated using factor analysis. A confirmatory factor analysis was conducted to replicate Cull and Gill's (1988) four-factor model. The CFA produced poor fit indices, therefore failing to support their model. A series of exploratory factor analyses were conducted in order to identify an appropriate model for the current sample. No interpretable factor structure emerged, suggesting that for the current population, the SPS is assessing one construct with no smaller factors. However, the small sample size likely contributed to this finding. Also, a limited response range was observed for the participants in the high-risk group for suicidal behavior.

Gender Issues

Female inmates are becoming more prevalent in county jails, state penitentiaries, and federal prisons. The number of incarcerated females has increased at a disproportionately higher rate than for males (Greenfeld & Snell, 1999). Conflicting results have been observed in terms of prevalence rates of mental disorders among female inmates. The current study determined that one-third of the female inmates met criteria for a major depressive episode or a psychotic disorder. In contrast, approximately 22% of the males met criteria for one of these major Axis I disorders. Significantly more female inmates met criteria for a major depressive episode (19.6%) than males (6.1%).

This finding is consistent with research that has found that female inmates are more likely than male inmates to have a history of mental disorders (e.g., Ditton, 1999).

Previously published rates of mental disorders among women inmates range from less than 4% (Arboleda-Florez et al., 1995) to more than 70% (Martin et al., 1995). This large range of reported prevalence rates is partly due to the wide variety of assessment tools and criteria used for determining the presence of mental disorders (Teplin & Voit, 1996). Also, some studies report rates of mental disorders exclusively in terms of lifetime prevalence (e.g., Cote & Hodgins, 1990; Ditton, 1999; Guy et al., 1985), while others assess current symptomatology (e.g., Lindquist & Lindquist, 1997; Martin et al., 1995). The current prevalence of 19.6% is most consistent with Daniel et al.'s (1988) finding of a 21% prevalence rate for major depression among female inmates.

Gender differences were also observed in the effectiveness of the three screens in identifying inmates with mental disorders and suicidality. Specifically, when cut scores for each domain of each screen were calculated, different levels were required for males and females in order to maximize sensitivity. Table 40 summarizes the recommended cut scores for each screen and clinical domain by gender. Levels of sensitivity, NPP, and overall correct classification are also displayed.

Table 40

Recommended Cut Scores for Each Gender by Screen and Clinical Domain

		RDS		MDSIS		PAS	
		Males	Females	Males	Females	Males	Females
Major depression	Cut Score	≥ 2	≥ 1	≥ 2	≥ 1	≥ 6	≥ 6
	Sensitivity	1.00	1.00	1.00	1.00	.67	1.00
	NPP	1.00	1.00	1.00	1.00	.97	1.00
	PPP	.12	.26	.12	.26	.15	.56
	Specificity	.50	.29	.50	.29	.76	.80
	OCC[a]	.53	.43	.53	.43	.76	.84
Suicide risk	Cut Score	≥ 2	≥ 2	≥ 1	≥ 2	≥ 1	≥ 2
	Sensitivity	1.00	1.00	1.00	1.00	.83	.86
	NPP	1.00	1.00	1.00	1.00	.96	.97
	PPP	.25	.29	.29	.50	.25	.55
	Specificity	.54	.54	.62	.81	.61	.87
	OCC	.60	.61	.67	.84	.64	.86
Psychotic disorder	Cut Score	≥ 1	≥ 1	≥ 1	≥ 1	≥ 1	≥ 1
	Sensitivity	.75	1.00	.75	.71	.63	.86
	NPP	.87	1.00	.93	.94	.81	.96
	PPP	.18	.29	.32	.28	.16	.21
	Specificity	.32	.61	.68	.71	.33	.48
	OCC	.39	.67	.69	.71	.38	.53

[a]OCC = Overall Correct Classification

On the RDS-Depression scale, a cut score of ≥ 2 for major depression was most appropriate for male participants; this score maintained a sensitivity of 1.0. This cut score is consistent with Teplin and Swartz's (1989) recommendation for the depression scale. However, Teplin and Swartz developed the RDS on an exclusively male inmate sample. In the current study, a cut score of ≥ 1 for depression was the most effective at maximizing sensitivity for female inmates. The higher cut score for males (≥ 2) missed 20% of the female inmates with major depression. Hart et al.'s (1993) recommendation of increasing the RDS-Depression cut score to ≥ 3 would have resulted in 40% of the females with major depression being missed by the screen.

Similarly, results from the MDSIS-Depression scale supported lower cut scores for women than men. Again, a cut score of $\geq$ 2 for men maintained sensitivity at 1.0, while for women a cut score of $\geq$ 1 was required for the same level of sensitivity. One explanation for the discrepancy in recommended cut scores for males and females on the depression subscales is the exclusion of symptoms that may be particularly salient for women. For example, neither the MDSIS nor the RDS addresses symptoms of sleep disturbance, fatigue/lack of energy, or concentration problems.

In terms of suicidality, no significant difference was observed in the number of males (13.3%) and females (15.9%) at high risk for suicidal behavior. While no published studies have directly compared the rates of suicide risk between male and female inmates, suicidality has been examined separately for men and women in a few studies. For example, Bonner and Rich (1990) found that 48.6% of males in a county jail reported moderate or high suicide ideation. However, they used the Scale for Suicidal Ideation (SSI; Beck, Kovacs, & Weissman, 1979), which assesses only the ideational component of suicidality. Blaauw et al. (2002) reported that 19.1% of their male inmate sample was considered high risk for suicide. Their prevalence rate was based on the clinical judgment of a correctional psychologist. In comparison, reported rates for suicidality among female inmates range from 21.9 % to 53.4% (Charles et al., 2003; DeCou, 2001; Earthrowl & McCully, 2002). These studies used a variety of methods for determining suicide risk, including unstructured clinical interviews and brief screening tools. The higher prevalence rates found in past studies are likely due to the higher false-positive rates generated by these methods of assessment.

Gender differences were observed in the screens' abilities to identify these suicidal inmates. On the MDSIS-Suicide Crisis scale, a cut score of $\geq$ 1 produced a sensitivity of 1.0 for males, while a cut score of $\geq$ 2 for women maintained this same level. For men, a cut score of $\geq$ 1 on the PAS-Suicidal Thinking scale maximized sensitivity at 0.83, while for women a higher cut score of $\geq$ 2, recommended by Morey (1991), produced a similar level of sensitivity (0.86).

Regarding psychotic disorders, no modifications were needed for any cut score based on gender. A cut score of $\geq$ 1 for psychotic disorders maximizes sensitivity for both males and females across all three screens. Teplin and Swartz (1989) recommended a cut score of $\geq$ 2 on the RDS-Schizophrenia subscale. However, this cut score would have missed 14% of females and 25% of males with psychotic disorders. Like the RDS-Depression subscale, the Schizophrenia subscale excludes several salient psychotic symptoms that may be particularly relevant for inmates with psychotic disorders. For example, hallucinations, disorganized speech, negative symptoms, and social impairment are not addressed.

An unexpected finding was discovered in terms of the ability of items from across the three screens to classify inmates based on suicide risk level. When separated by gender, the classification accuracy of screen items increased from 90.8% overall to 97.8% for males and 95.5% for females. All of the inmates at high risk for suicide were classified correctly in both genders. For males, the three items that combined to produce the highest classification rate were thoughts of suicide, feelings of persecution, and perception of oneself as unhappy and negative. Each of these components is discussed below.

Predictors of Male Suicide Risk

Thoughts of Suicide

This item broadly encompasses characteristics of suicidal ideation that includes suicide threats, preoccupation with suicide, direct expressions of one's wish to die, and subtle indicators of suicide planning (Beck, 1986). Research has shown that the most accurate way of identifying a suicidal individual is by directly asking about suicidal ideation (Lester, 1974). It has been estimated that up to 80% of people who commit suicide give some indication of their intent (Maris, 1992). For the males in the current sample, a direct question regarding suicidal ideation is helpful in classifying high-risk inmates.

Feelings of Persecution

Several studies have identified significant relationships between psychotic thinking and suicide attempts. For example, Fawcett, Scheftner, Clark, Hedeker, Gibbons, and Coryell (1987) and Welch and Gunther (1997) found that delusional ideation was associated with suicide. More specifically, Correia (2000) reported that depressed individuals with delusions of reference or persecution are five times more likely to commit suicide than depressed people who are not delusional.

Perception of Oneself as Unhappy and Negative

Self-concept has been recognized as an indicator of suicide risk independent of hopelessness (Beck, Steer, et al., 1990). Participants who endorsed this item may also have a tendency toward dysfunctional assumptions, maladaptive attributional styles, and insufficient reasons for living (Weishaar, 2000).

Predictors of Female Suicide Risk

A unique combination of screen items was required to accurately classify the female participants as high suicide risk. The combination of four items correctly classified all of the female inmates at high risk for suicidal behavior. Only one of these items emerged as significant in the discriminant analysis conducted for males and females combined (thoughts of suicide methods). The three items unique to females are: (a) being perceived by others as aggressive, (b) beliefs of being poisoned or plotted against, and (c) dysphoria. Each of these features will be discussed relative to past research on suicidality.

Perception by Others as Aggressive

From a psychoanalytic perspective, aggression and suicide have long been thought to be closely related (Brown, Linnoila, & Goodwin, 1992). Another primary component in Shneidman's (1974) theoretical view of suicide is inimicality, the extent to which a person engages in dangerous or self-destructive behaviors (Cull & Gill, 1988). Supporting this view, Ivanoff and Jang (1991) found that inmates who committed violent crimes showed significantly more current suicidal ideation than inmates incarcerated for nonviolent offenses. Tondo et al. (2003) investigated risk factors for suicide in bipolar disorder. They found that a history of committing violent acts was more common in people who committed suicide than those who did not.

Beliefs of Being Poisoned or Plotted Against

Several studies have identified significant relationships between psychotic thinking and suicide attempts. For example, Fawcett et al. (1987) and Welch and Gunther (1997) found that delusional ideation was associated with suicide. More

specifically, Correia (2000) reported that depressed individuals with delusions of reference or persecution are five times more likely to commit suicide than depressed people who are not delusional.

Dysphoric Mood

Mood disorders are often associated with suicide (Tanny, 1992). Inmates who endorse this item may be experiencing hopelessness, which is the cognitive feature most consistently related to suicidal ideation, intent, and completion (Beck, Brown, Berchick, Stewart, & Steer, 1990; Beck, Steer, Kovacs, & Garrison, 1985; Fawcett et al., 1987; Weishaar, 2000).

These discriminating items are not patently obvious as predictors of high suicide risk. Although previous research has demonstrated a relationship between both aggression and delusions in the risk of suicidal behavior, their emergence as highly discriminating between suicide risk groups with the current female sample is unexpected. Previous research would suggest that items more clearly related to suicide, such as a history of suicide attempts, psychiatric hospitalization, and interpersonal loss would emerge as significant predictors for this population (Bonner, 1992). This finding indicates that suicidal female inmates may not endorse more transparent items directly related to suicide. Instead, suicidal female detainees may endorse symptoms more representative of general impairment and negative affect.

Practical Implications for Correctional Settings

Administrators in correctional institutions have the difficult task of housing and managing individuals with a multitude of psychological problems, addictions, and disruptive and self-injurious behaviors. Courts have also mandated that jails assume the

responsibility of providing medical and mental health care for inmates in crisis. The first step in this process is the intake procedures. Jail personnel must process many arrestees as efficiently as possible. One of the major goals of this study was to investigate screening measures that require minimum time to yield accurate preliminary decisions about further assessment and subsequent intervention.

Two of the screening measures examined in the current study, the RDS and the MDSIS, were designed specifically for use in jail facilities. The RDS has been investigated in terms of its utility estimates (Hart et al., 1993; Teplin, 1990; Veysey, Steadman, Morrissey, Johnsen, & Beckstead, 1998), validity (Hart et al., 1993; Rogers et al., 1995; Veysey et al., 1998), and interrater reliability (Hart et al., 1993). Conflicting recommendations concerning the use of the RDS emerged from these studies. The present study recommends the use of the RDS in screening inmates for psychotic symptoms. However, the MDSIS and the PAS proved more effective than the RDS at screening inmates for depression and suicidality. The RDS's ability to accurately screen inmates with bipolar disorder was unable to be assessed in this study due to the lack of inmates meeting criteria for this disorder.

One advantage for jail management of the MDSIS over the RDS is its focus on past and current suicidal ideation and behavior. As described earlier, suicide is a significant problem in jails, and screening for suicide risk should be a primary component of any jail intake procedure. As the first study to examine the MDSIS, the current results suggest that this screen is useful for identifying inmates at risk for suicidal behavior. The primary weakness of the MDSIS is its lack of a subscale

assessing psychosis and its comparatively low levels of sensitivity in identifying psychotic inmates.

The third screen, the PAS, was not previously investigated with a correctional population. Findings from the current study indicate that the PAS is especially useful in identifying inmates with major depression. The PAS also consists of a range of items assessing a broader spectrum of problematic clinical issues than the MDSIS or RDS. While these other domains were not directly addressed in the present study, some of the subscales, such as anger control and alcohol problems, may prove useful for jail administrators. For example, inmates with a history of anger control problems may be prone to disruptive behaviors or aggressive acts against other inmates or staff.

Depending on the specific institution's goal in using screens, each screen has the potential to assist jail staff in identifying inmates in need of further evaluation. For those most concerned with suicidal behavior, the MDSIS would clearly be the optimum choice. The RDS is most accurate at identifying inmates with psychotic disorders, whereas the PAS screens for a broader range of clinical issues and effectively identifies inmates with depression.

Limitations of the Current Study

The primary purpose of this study was to examine the dimensions and utility estimates of three screening measures in a jail population. A primary limitation of this study is its moderate sample size, which is problematic for the exploratory and confirmatory factor analyses. Larger sample sizes are needed to improve the stability of the screens' factor structures. The sample size markedly limits the generalizability of the

comparisons made across genders for the screens. Larger samples are needed to test the recommended screen scores and item composition that is predictive of suicide risk.

Participants were recruited from the general jail population, rather than at the time of their arrest and intake to the jail. Established jail procedures and the lengthy intake process precluded the immediate assessment of inmates at the time of their arrival. For most arrestees, the most stressful and potentially dangerous time of incarceration is likely to be the first 24 hours (Hayes, 1989). Assessing newly arrested inmates during this time frame would increase the ecological validity of the findings related to the screening measures.

Another possible limitation was the use of the SPS as the criterion standard for determining suicide potential. The most valid criterion standard would be future suicide attempts. However, ethical constraints would preclude the use of this criterion. In addition, the current study was not designed as a longitudinal study, so an assessment measure must rely on current data. Published measures have not shown any major advantage for other measures over the SPS in terms of predictive validity (Rothberg & Geer-Williams, 1992). The SPS was selected for this study because it has been empirically validated, includes subscales derived through factor analysis, and is efficient in its administration time (Cull & Gill, 1988). Moreover, the SPS is one of the few published measures of suicide risk that has been normalized and validated on different populations. However, the use of other measures of suicide risk may have produced different results.

Directions for Future Research

Larger and more diverse samples should be included in future research investigating screens for mental disorders and suicidality in jail populations. The current study used inmates from one mid-size county jail. As a next step, a multi-site study of both larger and smaller jails would increase the generalizability of results. Larger samples from a variety of research sites would also allow for the comparison of different ethnic groups across the screens in terms of mental disorders and suicidality.

An important consideration in assessing jail detainees is the presence of intoxication and history of drug abuse and dependence. Many studies have found that both alcoholism and drug abuse are significant predictors of both attempted and completed suicides (Lester, 1992). Assessing inmates' histories of substance use could provide an important component in predicting suicidality. As noted, the current screens appear to neglect important predictors since they identify only about 50% of inmates at high risk for suicide.

Another direction for future research would include beginning the development of a new screening measure for jail inmates. The current study provided preliminary information on the utility estimates and factor structure for each screen. Combining scales and/or items from across the screens could produce a more useful and efficient tool for jail intake personnel. For example, psychosis was most efficiently screened by the RDS, depression by the PAS, and suicidality by the MDSIS. Combining optimal items from three subscales into one screening measure has the potential to improve the classification and management of inmates regarding these three important clinical domains.

Summary

This study evaluated three screening measures for identifying mentally disordered and suicidal inmates in a jail population. An important finding of the current research involves gender differences and the need for different predictors for male and female inmates at risk for suicidal behavior. When separated by gender, the current data suggest that both the high-risk females and males in the current sample, pending further study, have the potential to be accurately identified by these three screens. Male inmates at high risk for suicide were most effectively identified by items addressing suicidal ideation, depression, and paranoia. For female inmates, various diagnostic items were predictive of high suicide risk, including paranoid thoughts, aggression, and dysphoria.

Preliminary factor structures were established for the MDSIS and the RDS. Based on the current sample, three factors addressing past mood symptoms, suicide/crisis, and current depression comprise the MDSIS. The RDS partially assesses the three domains conceptualized in its development, manic, paranoid, and depressive symptoms. Additionally, a new factor structure was proposed for the PAS with this sample. This new structure retains four of Morey's (1991) original factors and reconfigures three new factors.

This study adds to the literature on the screening and assessment of mentally disordered and suicidal jail inmates. It provides a direct comparison of three screening measures and provides the first empirical study of the MDSIS. The current research underscores the importance of assessing for severe mental disorders and suicidality in

a jail population. The current screens perform valuable functions in identifying inmates likely to be disordered or even suicidal.

APPENDIX A

REFERRAL DECISION SCALE (RDS)

Reproduced with permission from Springer Netherlands.

Schizophrenia

1. Have you ever believed that people were watching you or spying on you?
2. Have you ever believed that people were following you?
3. Have you ever believed that you were being poisoned or plotted against by others?
4. Have you ever believed that someone could control your mind by putting thoughts into your head or taking thoughts out of your head?
5. Have you ever felt that other people knew your thoughts and could read your mind?

Bipolar

1. Has there ever been a period of a week or more when your thoughts raced so fast that you had trouble keeping track of them?
2. Have you ever felt for a period of a week or longer that you had a special talent or powers and could do things others couldn't or that in some way you were an especially important person?
3. Again, for a period of a week or more, have you felt that you didn't need to sleep very much or at all, yet didn't feel sleepy?
4. Have you or your family or friends ever noticed a time when you were much more active than you usually are? Have you ever felt for at least a week or longer that you were much more interested in sex than you usually are or that you wanted to have sex more often than normal?
5. Have you ever been in a hospital for non-medical reasons such as in a psychiatric hospital?

Depression

1. Have you ever lost your appetite for a period of two or more weeks? Have you ever lost or gained as much as two pounds a week for several weeks without even trying?
2. Have you ever felt like you had to talk or move more slowly than you usually do? Or, have there ever been a few weeks when you had to keep moving and doing something all the time and you couldn't sit still?
3. Have there ever been a few weeks when you felt much less interested in sex than you usually do?
4. Have there ever been a few weeks when you've felt like you were useless, or sinful, or guilty?

APPENDIX B

MENTAL DISABILITY/SUICIDE INTAKE SCREENING (MDSIS)

Reproduced with permission from Texas Commission on Jail Standards.

Questionnaire for Detainee

1. Have you ever received MHMR services or other mental health services?
2. Do you know where you are?
3. What season is this?
4. How many months are there in a year?
5. (a) Sometimes people tell me they hear noises or voices that other people don't seem to hear. What about you?

   (b) If yes, ask for an explanation: "What do you hear?"

Observation Questions

6. Does the individual act or talk in a strange manner?
7. Does the individual seem unusually confused or preoccupied?
8. Does the individual talk very rapidly or seem to be in an unusually good mood?
9. Does the individual claim to be someone else like a famous person or fictional figure?
10. (a) Does the individual's vocabulary (in his/her native tongue) seem limited?

    (b) Does the individual have difficulty coming up with words to express him/herself?

Suicide Related Questions/Observations

11. (a) Have you ever attempted suicide?

    (b) Have you ever had thoughts about killing yourself?

    If yes, when?

    Why?

    How?

12. Are you thinking about killing yourself today?

13. (a) Have you ever been so down that you couldn't do anything for more than a week? (If no, go to 14.)

(b) Do you feel this way now?

14. When not on drugs or drinking, have you ever gone for days without sleep or had a long period in your life when you felt very energetic or excited?

15. Have you experienced a recent loss or death of family member or friend or are you worried about major problems other than your legal situation?

16. Does the individual seem extremely sad, apathetic, helpless, or hopeless?

APPENDIX C

CONSENT FORM

Mental Health Assessment in a Jail Population
Consent Form

Purpose of the study
This study looks at whether measures for assessing mental disorders are useful in jails.

Description of the study
Participating in this study involves two simple screens, two pencil and paper questionnaires, and being interviewed. You will be interviewed in an attorney visitation room. No guards or jail staff will be present in the room. Although participation time varies from person to person, the whole study should take about one to one and one half hours.

Procedures to be used
The project consists of two brief screens, two questionnaires, and an interview. The two screens consist of questions designed to assess symptoms of mental disorders. Each screen will take a maximum of 5 minutes. The two questionnaires cover a broad range of items about your thoughts, feelings, and personality characteristics. These two questionnaires take about 10 minutes each to complete. The interview asks more in-depth questions about feelings you have or may have had and your behaviors. Depending on your responses, the interview could take between 30 minutes to one hour.

Description of the foreseeable risks
Some participants may find particular questions slightly unpleasant. You may quit at any time for any reason.

Benefits to the subjects or others
This study could help jails and mental health professionals develop effective measures for identifying inmates with psychological problems.

Procedures for maintaining confidentiality of research records
All the information you provide will be kept confidential. You will be assigned a code number and research materials will not include your name or other identifying information. The code number will be placed at the top of each questionnaire, and no material other than consent forms will contain names or other identifying information. The consent forms will be stored separately from the questionnaires. Research materials will be stored in a locked file cabinet at the University of North Texas. After the data has been entered into the computer, all research materials will be destroyed. No information will be kept at the jail, and jail staff will not be informed of your responses. If you reveal any information about crimes committed or about to be committed, I may have to reveal that information.

Review for the protection of participants
This project has been reviewed and approved by the UNT Committee for the Protection of Human Subjects (940/565-3940).

The researchers have explained the study to me and answered all of my questions. I have been told the risks and/or discomforts as well as the possible benefits of the study.

I understand that I do not have to take part in this study and my refusal to participate or to withdraw will involve no penalty, loss of rights, loss of benefits, or legal recourse to which I am entitled. The study personnel may choose to stop my participation at any time.

In case problems or questions arise, I can contact Kimberly Harrison, Doctoral Student, Department of Psychology, or Dr. Richard Rogers, Professor of Psychology, at (940) 565-2671.

I understand my rights as a research subject and I voluntarily consent to participate in this study. I understand what the subject is about, how the study is conducted, and why it is being performed. I have been given a copy of this informed consent document.

_____ _____
Signature Date

_____ _____
Witness Date

APPENDIX D

SUICIDE PROBABILITY SCALE FACTOR LOADINGS

Table 41

SPS Factor Loadings (Factor Loading/Error Term) Generated by Confirmatory Factor Analysis Testing the Cull and Gill (1988) Model of Suicide Probability in a Sample of Inmates

SPS Item	Factor 1	Factor 2	Factor 3	Factor 4	Error Term
1. throw things when mad	.			**.91**	.43
2. many people care for me			**.68**		.74
3. impulsive				.28	.96
4. think of bad things		.45			.89
5. too much responsibility	.03				1.0
6. can do much worthwhile			.42		.91
7. to punish others, I think of suicide		.53			.85
8. hostile toward others				**.62**	.79
9. isolated				.45	.89
10. people appreciate me			.27		.96
11. people will be sorry if I die			.21		.98
12. lonely	.53				.85
13. others are hostile toward me				.36	.93
14. I would make many changes	.27				.96
15. not able to do things well	.49				.87
16. trouble finding/keeping a job				.35	.94
17. no one will miss me	**.68**				.74
18. things go well for me			**.70**		.72
19. people expect too much of me	.38				.93
20. I need to punish myself		.31			.95
21. world is not worth living in		**.67**			.75
22. I plan for the future			.54		.84
23. don't have many friends	**.63**				.77
24. others better off if I were dead		**.82**			.57
25. less painful to die		**.88**			.48
26. close to mother			.18		.98
27. close to mate			.39		.92
28. hopeless	**.70**				.71
29. people don't approve of me	**.62**				.79
30. have thought of how to do self in		**.68**			.74
31. worry about money	.52				.86
32. think of suicide		**.72**			.69
33. tired and listless	.56				.83
34. break things when mad				**.84**	.55
35. close to father			.22		.98
36. can't be happy	**.61**				.79

Note. Substantial loadings ($\geq$ .60) are presented in bold type.

APPENDIX E

EXPLORATORY FACTOR ANALYSIS OF THE SUICIDE PROBABILITY SCALE

Table 42

Exploratory Factor Analysis of the Suicide Probability Scale

SPS Item	Factor 1	Factor 2	Factor 3	Factor 4
1	.15	**.80**	.04	-.09
2	**.52**	.10	**.42**	.14
3	.39	.32	-.03	-.01
4	**.40**	**.54**	-.15	.11
5	.19	.25	.12	**-.55**
6	.16	.08	.16	**.49**
7	**.61**	.28	-.02	-.21
8	.03	**.74**	-.03	-.05
9	.35	**.50**	.36	.02
10	.37	.09	-.04	.35
11	-.02	-.06	.19	**.45**
12	.24	**.40**	**.46**	-.33
13	.21	**.42**	.17	**-.48**
14	-.06	.17	**.54**	-.03
15	.25	.27	**.47**	.00
16	**.48**	.29	.25	.13
17	**.44**	.36	**.41**	.10
18	**.45**	.10	**.51**	.09
19	.27	**.41**	.17	.01
20	.25	.20	.38	-.28
21	**.78**	-.08	.29	-.02
22	**.43**	-.01	.24	**.41**
23	**.49**	.29	.31	.23
24	**.66**	**.41**	.23	.05
25	**.79**	.18	.23	-.11
26	.07	-.25	**.46**	-.05
27	.00	-.09	**.58**	.20
28	**.54**	.27	.35	-.05
29	.07	**.60**	.37	.09
30	**.72**	.32	-.03	-.10
31	.25	.15	**.59**	.10
32	**.76**	.08	.08	-.12
33	**.80**	.05	.07	.13
34	.16	**.74**	.09	-.08
35	.01	.16	-.06	**.64**
36	.35	**.42**	.36	.11

APPENDIX F

SUBSCALE CORRELATIONS OF THE RDS, MDSIS, AND PAS

Table 43

Subscale Correlations of the RDS, MDSIS, and PAS

		RDS			MDSIS			
	Subscale	Schizophrenia	Mania	Depression	Psychotic	Mania	Depression	Suicide
RDS	Schizophrenia		.45**	.51**	.42**	.28**	.37**	.14
	Mania	.45**		.71**	.57**	.62**	.61**	.53**
	Depression	.51**	.71**		.48**	.59**	.59**	.46**
MDSIS	Psychotic	.42**	.57**	.48**		.65**	.70**	.67**
	Mania	.28**	.62**	.59**	.64**		.70**	.73**
	Depression	.37**	.61**	.59**	.70**	.70**		.86**
	Suicide	.14	.53**	.46**	.67**	.73**	.86**	
PAS	NA	.29**	.38**	.41**	.34**	.34**	.43**	.41**
	AO	.19	.32**	.20*	.21*	.26*	.27**	.28**
	HP	.34**	.40**	.42**	.44**	.40**	.51**	.29**
	PF	.37**	.35**	.25*	.30**	.28**	.30**	.30**
	SW	.22*	-.02	.07	.17	-.03	.03	.04
	HC	.04	.15	.18	.05	.23*	.07	.14
	ST	.44**	.47**	.45**	.54**	.44**	.69**	.59**
	AN	.21*	.31**	.35**	.32**	.37**	.37**	.29**
	AP	.05	.07	.10	.01	-.08	-.02	-.03
	AC	.17	.18	.20*	.22*	.26*	.19	.26*

		PAS									
		NA	AO	HP	PF	SW	HC	ST	AN	AP	AC
RDS	Schizophrenia	.29**	.19	.34**	.37**	.22*	.04	.44**	.21*	.05	.17
	Mania	.38**	.32**	.40**	.35**	-.02	.15	.47**	.31**	.07	.18
	Depression	.41**	.20*	.42**	.25*	.07	.18	.45**	.35**	.10	.20*
MDSIS	Psychotic	.34**	.21*	.44**	.30**	.17	.05	.54**	.32**	.01	.22*
	Mania	.34**	.26*	.40**	.28**	-.03	.23*	.44**	.37**	-.08	.26*
	Depression	.43**	.27**	.51**	.30**	.03	.07	.69**	.37**	-.02	.19
	Suicide	.41**	.28**	.29**	.30**	.04	.14	.59**	.29**	-.03	.26*
PAS	NA		.15	.30**	.38**	.26*	-.04	.40**	.31**	.14	.39**
	AO	.15		.05	.12	-.11	.23*	.18	.30**	.17	.19
	HP	.30**	.05		.23*	.02	-.10	.45**	.32**	-.06	.10
	PF	.38**	.12	.23*		.04	.08	.19	.33**	-.18	.10
	SW	.26*	-.11	.02	.04		-.26*	.15	.32**	.15	.21*
	HC	-.04	.23*	-.10	.08	-.26*		.06	.05	-.03	.26**
	ST	.40**	.18	.45**	.19	.15	.06		.29**	.06	.15
	AN	.31**	.30**	.32**	.33**	.32**	.05	.29**		-.01	.07
	AP	.14	.17	-.06	-.18	.15	-.03	.06	-.01		.07
	AC	.39**	.19	.10	.10	.21*	.26**	.15	.07	.07	

Note. NA = Negative Affect; AO = Acting Out; HP = Health Problems; PF = Psychotic Features; SW = Social Withdrawal; HC = Hostile Control; ST = Suicidal Thinking; AN = Alienation; AP = Alcohol Problem.
*Correlation is significant at $p < .05$.
**Correlation is significant at $p < .01$.

REFERENCES

Arboleda-Florez, J. E., Love, E. J., Fick, G., O'Brien, K., Hashman, K., & Aderibigbe, Y. (1995). An epidemiological study of mental illness in a remanded population. *International Medical Journal, 2,* 113-126.

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders: Text revision* (4th ed.). Washington, DC: Author.

Bagge, C., & Osman, A. (1998). The Suicide Probability Scale: Norms and factor structure. *Psychological Reports, 83,* 637-638.

Baskin, D. R., Sommers, I., Tessler, R., & Steadman, H. J. (1989). Role incongruence and gender variation in the provision of prison mental health services. *Journal of Health and Social Behavior, 30,* 305-314.

Beck, A. T. (1986). Hopelessness as a predictor of eventual suicide. *Annals of the New York Academy of Sciences, 487,* 90-96.

Beck, A. T., Brown, G., Berchick, R. J., Stewart, B. L., & Steer, R. A. (1990). Relationship between hopelessness and ultimate suicide: A replication with psychiatric outpatients. *American Journal of Psychiatry, 147,* 190-195.

Beck, A. T., Kovacs, M., & Weissman, A. (1979). Assessment of suicidal ideation: The Scale for Suicide Ideation. *Journal of Consulting and Clinical Psychology, 47,* 343-352.

Beck, A. T., Steer, R. A., Epstein, N., & Brown, G. (1990). The Beck Self-Concept Test. *Psychological Assessment: A Journal of Consulting and Clinical Psychology, 2,* 191-197.

Beck, A. T., Steer, R. A., Kovacs, M., & Garrison, B. (1985). Hopelessness and eventual suicide: A ten-year prospective study of patients hospitalized with suicidal ideation. *American Journal of Psychiatry, 142,* 559-563.

Bentler, P. M. (1998). EQS for Windows (Version 5.7b) [Computer software]. Los Angeles: BMDP Statistical Software, Inc.

Birmingham, L., Gray, J., Mason, D., & Grubin, D. (2000). Mental illness at reception into prison. *Criminal Behaviour and Mental Health, 10,* 77-87.

Blaauw, E., Arensman, E., Kraaij, V., Winkel, F.W., & Bout, R. (2002). Traumatic life events and suicide risk among jail inmates: The influence of types of events, time period, and significant others. *Journal of Traumatic Stress, 15,* 9-16.

Bonner, R. L. (1992). Isolation, seclusion, and psychosocial vulnerability as risk factors for suicide behind bars. In R. W. Maris, A. L. Berman, J. T. Maltsberger, & R. I. Yufits (Eds.), *Assessment and prediction of suicide* (pp. 398-419). New York: The Guilford Press.

Bonner, R. L., & Rich, A. R. (1990). Psychosocial vulnerability, life stress, and suicide ideation in a jail population: A cross-validation study. *Suicide and Life-Threatening Behavior, 20,* 213-224.

Bowring v. Godwin, 551 F.2nd 44 (4th Circuit, 1977).

Brown, G. L., Linnoila, M. I., & Goodwin, F. K. (1992). Impulsivity, aggression, and associated affects: Relationship to self-destructive behavior and suicide. In R. W. Maris, A. L. Berman, J. T. Maltsberger, & R. I. Yufits (Eds.), *Assessment and prediction of suicide* (pp. 589-606). New York: The Guilford Press.

Burdock, E. I., & Hardesty, A. S. (1968). Psychological test for psychopathology. *Journal of Abnormal Psychology, 73,* 62-69.

Busch, K. A., Fawcett, J., & Jacobs, D. G. (2003). Clinical correlates of inpatient suicide. *Journal of Clinical Psychiatry, 64,* 14-19.

Charles, D. R., Abram, K. M., McClelland, G. M., & Teplin, L. A. (2003). Suicidal ideation and behavior among women in jail. *Journal of Contemporary Criminal Justice, 19,* 65-81.

Clark, L. A., & Watson, D. (1995). Constructing validity: Basic issues in objective scale development. *Psychological Assessment, 7,* 309-319.

Clum, G. A., Patsiokas, A. T., & Luscomb, R. L. (1979). Empirically based comprehensive treatment program for parasuicide. *Journal of Consulting and Clinical Psychology, 47,* 937-945.

Corrado, R. R., Cohen, I. M., Hart, S. D., & Roesch, R. (2000). Diagnosing mental disorders in offenders: Conceptual and methodological issues. *Criminal Behaviour and Mental Health, 10,* 29-39.

Correia, K. M. (2000). Suicide assessment in a prison environment: A proposed protocol. *Criminal Justice and Behavior, 27,* 581-599.

Cote, G., & Hodgins, S. (1990). Co-occuring mental disorders among criminal offenders. *Bulletin of the American Academy of Psychiatry and the Law, 18,* 271-281.

Cull, J. G., & Gill, W. S. (1988). *Suicide Probability Scale.* Los Angeles: Western Psychological Services.

Daniel, A. E., Robins, A. J., Reid, J. C., & Wilfley, D. E. (1988). Lifetime and six-month prevalence of psychiatric disorders among sentenced female offenders. *Bulletin of the American Academy of Psychiatry and the Law, 16,* 333-342.

Danto, B. L. (1997). Suicide litigation as an agent of change in jail and prison: An initial report. *Behavioral Sciences and the Law, 15,* 415-425.

DeCou, K. (2001). Incarcerated women and self-harm: Security or sanity. In G. Landsberg, & A. Smiley (Eds.), *Forensic mental health: Working with offenders with mental illness* (pp. 36.1-36.15). Kingston, NJ: Civic Research Institute.

Derogatis, L. (1993). *Brief Symptom Inventory (BSI): Administration, scoring, and procedures manual* (3rd ed.). Minneapolis, MN: National Computer Systems.

DeVellis, R. F. (1991). *Scale development: Theory and applications.* Newbury Park, CA: Sage Publications.

Ditton, P. M. (1999). Mental health and treatment of inmates and probationers. Bureau of Justice Statistics Bulletin. NCJ-174463. Washington, DC: U.S. Department of Justice.

Ditton, P. M., & Wilson, D. J. (1999). Truth in sentencing in state prisons. Bureau of Justice Statistics Special Report. NCJ-170032. Washington, DC: U.S. Department of Justice.

Earthrowl, M., & McGully, R. (2002). Screening new inmates in a female prison. *The Journal of Forensic Psychiatry, 13,* 428-439.

Eisenberg, M. G., Hubbard, K. M., & Epstein, D. (1990). Detection of suicidal risk among hospitalized veterans: Preliminary experiences with a suicide prediction scale. *Journal of Rehabilitation, 56,* 63-68.

Endicott, J., Cohen, J., Nee, J., Fleiss, J., & Sarantakos, S. (1981). Hamilton Depression Rating Scale: Extracted from regular and change versions of the Schedule for Affective Disorders and Schizophrenia. *Archives of General Psychiatry, 38,* 98-103.

Estelle v. Gamble, 429 US 97 (1976).

Fawcett, J., Scheftner, W., Clark, D., Hedeker, D., Gibbons, R., & Coryell, W. (1987). Clinical predictors of suicide in patients with major affective disorders: A controlled prospective study. *American Journal of Psychiatry, 144,* 35-40.

Frottier, P., Fruehwald, S., Ritter, K., Eher, R., Schwarzler, J., & Bauer, P. (2002). Jailhouse blues revisited. *Social Psychiatry and Psychiatric Epidemiology, 37,* 68-73.

Fruehwald, S., Frottier, P., Ritter, K., Eher, R, & Gutierrez, K. (2002). Impact of overcrowding and legislational change on the incidence of suicide in custody: Experiences in Austria, 1967-1996. *International Journal of Law and Psychiatry, 25,* 119-128.

Goldstein, J. M., & Simpson, J. C. (2002). Validity: Definitions and applications to psychiatric research. In M. T. Tsuang & M. Tohen (Eds.), *Textbook in psychiatric epidemiology* (2nd ed., pp. 149-163). New York City: Wiley-Liss.

Greenfeld, L. A., & Snell, T. L. (1999). Women offenders. *Bureau of Justice Statistics Bulletin.* NCJ-175688. Washington, DC: U.S. Department of Justice.

Guy, E., Platt, J.J., Zwerling, I., & Bullock, S. (1985). Mental health status of prisoners in an urban jail. *Criminal Justice and Behavior, 12,* 29-53.

Harlow, C. W. (2003). *Education and Correctional Populations*. Bureau of Justice Statistics Special Report. NCJ-195670. Washington, DC: U.S. Department of Justice.

Harrison, P. M., & Karberg, J. C. (2004). *Prison and Jail Inmates at Midyear 2003*. Bureau of Justice Statistics Bulletin. NCJ-203947. Washington, DC: U.S. Department of Justice.

Hart, S. D., & Hemphill, J. F. (1989). *Prevalence of and service utilization by mentally disordered offenders at the Vancouver Pretrial Services Centre.* Report submitted to the British Columbia Corrections Branch in fulfillment of contract COR-22153.

Hart, S. D., Roesch, R., Corrado, R. R., & Cox, D. N. (1993). The Referral Decision Scale: A validation study. *Law and Human Behavior, 17,* 611-623.

Hayes, L. M., & Kajdin, B. (1981). *And darkness closes in . . .: National study of jail suicides.* Washington, DC: National Center for Institutions and Alternatives.

Hayes, L. M., & Rowan, J. R. (1988). *National study of jail suicides: Seven years later.* Alexandria, VA: National Center for Institutions and Alternatives.

Hodgins, S. (1995). Assessing mental disorder in the criminal justice system: Feasibility versus clinical accuracy. *International Journal of Law and Psychiatry, 18,* 15-28.

Hodgins, S., & Cote, G. (1992). The prevalence of major mental disorders among homicide offenders. *International Journal of Law and Psychiatry, 15,* 89-99.

Hodgins, S., & Cote, G. (1993). The criminality of mentally disordered offenders. *Criminal Justice and Behavior, 20,* 115-129.

Hopes, B. G. (1986). *Jail suicides: Prevention through prediction.* Cincinnati, OH: Hamilton County Justice Center.

Hurt, S. W., Friedman, R. C., Clarkin, J., Corn, R., & Aronoff, M. S. (1982). Rating the severity of depressive symptoms in adolescents and young adults. *Comprehensive Psychiatry, 23,* 263-270.

Ivanoff, A., & Jang, S. J. (1991). The role of hopelessness and social desirability in predicting suicidal behavior: A study of prison inmates. *Journal of Consulting and Clinical Psychology, 59,* 394-399.

Jastrak, J. F., Bijou, S. W., & Jastrak, S. (1978). *WRAT: Wide Range Achievement Test.* Wilmington, DE: Guidance Associates of Delaware.

Jordan, B. K., Schlenger, W. E., Fairbank, J. A., & Caddell, J. M. (1996). Prevalence of psychiatric disorders among incarcerated women. *Archives of General Psychiatry, 53,* 513-519.

Kincannon, J. C. (1968). Prediction of the standard MMPI scale score from 71 items: The Mini-Mult. *Journal of Consulting and Clinical Psychology, 32,* 319-325.

Klecka, W. R. (1980). *Discriminant analysis*. Beverly Hills, CA: Sage Publications, Inc.

Klinge, V., & Dorsey, J. (1993). Correlates of the Woodcock-Johnson Reading Comprehension and Kaufman Brief Intelligence Test in a forensic psychiatric population. *Journal of Clinical Psychology, 49,* 593-598.

Krawiecka, M., Goldberg, D., & Vaughan, M. (1977). A standardized psychiatric assessment scale for rating chronic psychotic patients. *Acta Psychiatrica Scandinavica, 55,* 299-308.

Kupers, T. (1999). *Prison madness: The mental health crisis behind bars and what we must do about it.* San Francisco: Jossey-Bass Inc.

Lamb, H. R., & Grant, R. W. (1982). The mentally ill in an urban county jail. *Archives of General Psychiatry, 39,* 17-22.

Lamb, H. R., & Grant, R. W. (1983). Mentally ill women in a county jail. *Archives of General Psychiatry, 40,* 363-368.

Larzelere, R. E., Smith, G. L., Batenhorst, L. M., & Kelly, D. B. (1996). Predicitve validity of the Suicide Probability Scale among adolescents in group home treatment. *Journal of the American Academy of Child and Adolescent Psychiatry, 35,* 166-172.

LeBrun, L. D. (1990). Characteristics of male suicide attempts in the Sacramento County Jail, 1985-1987. *Jail Suicide Update, 2(4),* 1-4.

Lester, D. (1992). Alcoholism and drug abuse. In R. W. Maris, A. L. Berman, J. T. Maltsberger, & R. I. Yufits (Eds.), *Assessment and prediction of suicide* (pp. 321-336). New York: The Guilford Press.

Lindquist, C. H., & Lindquist, C. A. (1997). Gender differences in distress: Mental health consequences of environmental stress among jail inmates. *Behavioral Sciences and the Law, 15,* 505-523.

Mann, V. A., Cowin, E., & Schoenheimer, J. (1989). Phonological processing, language comprehension, and reading ability. *Journal of Learning Disabilities, 22,* 76-89.

Maris, R. W. (1992). Overview of the study of suicide assessment and prediction. In R. W. Maris, A. L. Berman, J. T. Maltsberger, & R. I. Yufits (Eds.), *Assessment and prediction of suicide* (pp. 3-22). New York: The Guilford Press.

Martin, S. L., Cotton, N. U., Browne, D. C., Kurz, B., & Robertson, E. (1995). Family violence and depressive symptomatology among incarcerated women. *Journal of Family Violence, 10,* 399-411.

Maruschak, L. M. (2001). HIV in Prisons and Jails, 1999. *Bureau of Justice Statistics Bulletin.* NCJ-187456. Washington, DC: U.S. Department of Justice.

Morey, L. C. (1991). *Personality Assessment Inventory professional manual.* Odessa, FL: Psychological Assessment Resources.

Morey, L. C. (1991). *Personality Assessment Screener professional manual*. Tampa, FL: Psychological Assessment Resources.

Myers, J. K., & Weissman, M. M. (1980). Use of a self-report symptom scale to detect depression in a community sample. *American Journal of Psychiatry, 137,* 1081-1084.

Nielson, E. D. (1979). Community mental health services in the community jail. *Community Mental Health Journal, 15,* 27-32.

O'Leary, W. D. (1989). Custodial suicide: Evolving liability considerations. *Psychiatric Quarterly, 60,* 31-71.

Otto, R. K., & Heilbrun, K. (2002). The practice of forensic psychology: A look toward the future in light of the past. *American Psychologist, 57,* 5-18.

Overall, J. E., & Gorham, D. R. (1962). The Brief Psychiatric Rating Scale. *Psychological Reports, 10,* 799-812.

Petrich, J. (1976). Psychiatric treatment in jail: An experiment in health-care delivery. *Hospital and Community Psychiatry, 27,* 413-415.

Polvi, N. H. (1997). Assessing risk of suicide in correctional settings. In C. D. Webster, & M. A. Jackson (Eds.), *Impulsivity: Theory, assessment, and treatment* (pp. 278-301). New York: The Guilford Press.

Radloff, L. S. (1975). The CES-D Scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement, 1,* 385-401.

Rakis, J., & Monroe, R. (1989). Monitoring and managing the suicidal prisoner. *Psychiatric Quarterly, 60,* 151-160.

Robins, L. N., Helzer, J. E., Croughan, J. L., Ratcliff, K. S. (1981). National Institute of Mental Health Diagnostic Interview Schedule: Its history, characteristics, and validity. *Archives of General Psychiatry, 38,* 381-389.

Robins, L. N., & Marcus, S. C. (1987). The Diagnostic Screening Procedure Writer: A tool to develop individualized screening procedures. *Medical Care, 25,* S106-S122.

Rogers, R. (2001). *Handbook of diagnostic and structured interviewing.* New York: The Guilford Press.

Rogers, R., Sewell, K. W., Ustad, K., Reinhardt, V., & Edwards, W. (1995). The Referral Decision Scale with mentally disordered inmates: A preliminary study of convergent and discriminant validity*. Law and Human Behavior, 19,* 481-492.

Rosenfield, S. (1982). Sex roles and societal reactions to mental illness: The labeling of "deviant" deviance. *Journal of Health and Social Behavior, 23,* 18-24.

Rothberg, J. M., & Geer-Williams, C. (1992). A comparison and review of suicide prediction scales. In R. W. Maris, A. L. Berman, J. T. Maltsberger, & R. I. Yufits (Eds.), *Assessment and prediction of suicide* (pp. 202-217)*.* New York: The Guilford Press.

Schuckit, M. A., Herrman, G., & Schuckit, J. J. (1977). The importance of psychiatric illness in newly arrested prisoners. *The Journal of Nervous and Mental Disease, 165,* 118-125.

Sherman, L. G., & Morschauser, P. C. (1989). Screening for suicide risk in inmates. *Psychiatric Quarterly, 60,* 119-138.

Smith, G. T., & McCarthy, D. M. (1995). Methodological considerations in the refinement of clinical assessment instruments. *Psychological Assessment, 7,* 300-308.

Sommers-Flanagan, J., & Sommers-Flanagan, R. (1995). Intake interviewing with suicidal patients: A systematic approach. *Professional Psychology: Research and Practice, 26,* 41-47.

Spitzer, R. L., & Endicott, J. (1978). *Schedule for affective disorders and schizophrenia* (3rd ed.). New York: Biometrics Research.

Spitzer, R. L., Williams, J. B. W., Gibbon, M., & First, M. B. (1990b). *Structured Clinical Interview for DSM-III-R (SCID)*. Washington, DC: American Psychiatric Press.

Swank, G. E., & Winer, D. (1976). Occurrence of psychiatric disorder in a county jail population. *American Journal of Psychiatry, 133,* 1331-1333.

Tabachnick, B. G., & Fidell, L. S. (1989). *Using multivariate statistics* (2nd ed.). New York: Harper Collins Publishers, Inc.

Tatman, S. M., Greene, A. L., & Karr, L. C. (1993). Use of the Suicide Probability Scale (SPS) with adolescents. *Suicide and Life-Threatening Behavior, 23,* 188-203.

Teplin, L. A. (1986). *Mental disorder in an urban jail: Final report* (NIMH Contract #R01MH32884). Rockville, Maryland: National Institute of Mental Health.

Teplin, L. A. (1990). Detecting disorder: The treatment of mental illness among jail detainees. *Journal of Consulting and Clinical Psychology, 58,* 233-236.

Teplin, L. A., Abram, K. M., & McClelland, G. M. (1997). Mentally disordered women in jail: Who receives services? *American Journal of Public Health, 87,* 604-609.

Teplin, L. A., & Swartz, J. (1989). Screening for severe mental disorder in jails: The development of the Referral Decision Scale. *Law and Human Behavior, 13,* 1-18.

Teplin, L. A., & Voit, E. S. (1996). Criminalizing the seriously mentally ill: Putting the problem in perspective. In B. D. Sales, & S. A. Shah (Eds.), *Mental health and law: Research, policy and services* (pp. 283-317). Durham, NC: The Carolina Academic Press.

Texas Commission on Jail Standards (1997). *Mental disorder/suicide intake screening.* Austin, TX: Author.

Tondo, L., Isacsson, G., & Baldessarini, R. J. (2003). Suicidal behaviour in bipolar disorder: Risk and prevention. *CNS Drugs, 17,* 491-511.

Veysey, B. M., Steadman, H. J., Morrissey, J. P., & Johnsen, M. (1997). In search of the missing linkages: Continuity of care in U.S. jails. *Behavioral Sciences and the Law, 15,* 383-397.

Veysey, B. M., Steadman, H. J., Morrissey, J. P., Johnsen, M., & Beckstead, J. W. (1998). Using the Referral Decision Scale to screen mentally ill jail detainees: Validity and implementation issues. *Law and Human Behavior, 22,* 205-215.

Weishaar, M. E. (2000). Cognitive risk factors in suicide. In R. W. Maris, S. S. Canetto, J. L. McIntosh, & M. M. Silverman (Eds.), *Review of suicidology* (pp. 112-139). New York: The Guilford Press.

Weishaar, M. E., & Beck, A. T. (1992). Clinical and cognitive predictors of suicide. In R. W. Maris, A. L. Berman, J. T. Maltsberger, & R. I. Yufits (Eds.), *Assessment and prediction of suicide* (pp. 467-483). New York: The Guilford Press.

Welch, M., & Gunther, D. (1997). Jail suicide and prevention: Lessons from litigation. *Crisis Intervention and Time-Limited Treatment, 3,* 229-244.

Woodruff, R. A., Jr., Goodwin, D. W., & Guze, S. B. (1974). *Psychiatric diagnosis.* New York: Oxford University Press.

World Health Organization. (1990). *Composite International Diagnostic Interview (CIDI), Version 1.0.* Geneva, Switzerland: World Health Organization.

Yufit, R. I., & Bongar, B. (1992). Suicide, stress, and coping with life cycle events. In R. W. Maris, A. L. Berman, J. T. Maltsberger, & R. I. Yufits (Eds.), *Assessment and prediction of suicide* (pp. 553-573). New York: The Guilford Press.