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Utility of the Modified Mini Screen (MMS) for screening mental health disorders in a prison population

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UTILITY OF THE MODIFIED MINI SCREEN (MMS)

FOR SCREENING MENTAL HEALTH DISORDERS

IN A PRISON POPULATION

by

Jennifer Lynn Spotts

An Abstract

Of a thesis submitted in partial fulfillment
of the requirements for Doctor of Philosophy degree
in Psychological and Quantitative Foundations
in the Graduate College of The University of Iowa

May 2008

Thesis Supervisor: Professor John Westefeld

ABSTRACT

The rate of incarcerated individuals in the United States continues to grow. **At midyear 2005 the Nation's prisons and jails incarcerated 2,186,230 persons. (Bureau of Justice 1).** Prison systems are in need of a brief mental health-screening tool that rapidly and readily identifies mental illness and co-occurring substance abuse in inmates to improve the approach to mental health diagnosis and treatment throughout an offender's incarceration. This study was designed to assess whether the Modified Mini Screen (MMS) is a valid screening measure for identifying mood disorders, anxiety disorders, and psychotic disorders in newly admitted inmates during the intake and reception process in prisons. For this study, 130 individual's MMS scores were compared with results from the Brief Symptom Inventory to determine the proportion in each group with mental illness.

Findings show concurrent validity for age, ethnicity, level of education, and history of substance abuse and mental health. Concurrent validity of the MMS with the BSI was better for females than for males for. Results suggest that the sensitivity of the MMS is somewhat weak, as it only has a 55% chance of correctly identifying a mentally ill individual as being mentally ill. For females, the sensitivity of MMS was 87.5%, while the specificity was 100%. Moreover, for males, the sensitivity of MMS was 46.9%, while the specificity was 95.6%. These results suggest that the concurrent validity of the MMS with the BSI was better for females than for males for in this study sample.

Abstract Approved: _____

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CERTIFICATE OF APPROVAL

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PH.D. THESIS

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This is to certify that the Ph.D. thesis of

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To my parents: Ed and Kathy. Your love and encouragement allowed me to be a better person and persevere in all things.

It is always easier to fight for one's principles than to live up to them.
Author, Alfred Adler

ACKNOWLEDGEMENTS

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CHAPTER I

INTRODUCTION AND REVIEW OF THE LITERATURE

<u>United States Prison System</u>

The incarceration of American citizens into jails and prisons is a substantial

challenge in the United States (U.S.) in 2008. During 2006, state and federal prison

populations increased in 41 of 50 US states. This 2.8% increase demonstrated a faster

growth rate than in the previous 5 years (2000-2005; Bureau of Justice Statistics [BOJ],

2007a). In 2005, the U.S. prison and jail population had experienced a 2.6% growth

accounting for nearly 2.2 million incarcerated people (BOJ, 2006a; Ford & Trestman,

2005). This increase, which began in 1995, has shown an upsurge in the nation's

incarcerated population that in 2008 leaves nearly one out of every 100 U.S. adults

behind bars, according to figures gathered and analyzed by the Pew Public Safety

Performance Project (Pew Public Safety Performance Project [PPSPP], 2008). The

inception of tougher penalties, mandatory sentencing, and longer sentences for repeat

offenders has caused the incarceration rate of American men and women to rise. While

from 2000 to 2004 admissions to state prison systems increased by 11.5%, the number of

inmates released into the community fell behind (BOJ, 2006a).

With the growth in the U.S. prison population has come an increase in the number

of mentally ill people, many of them dealing with co-morbid substance abuse. Mental

health services, conversely, have had little parity with the population growth of

incarcerated inmates. It is understood that many of the inmates currently being shuffled

through state and federal correctional systems with mental health symptoms would have

received treatment in a residential facility three decades ago. The deinstitutionalization of the mentally ill was thought to be a move towards inclusion of mentally ill people into society. Yet, past research along with more recent scrutiny argue that it resulted in the criminalization and ultimately the incarceration of the mentally ill (McCorkle, 1995; Teplin, 1983). This phenomenon has resulted in high rates of homelessness and it has overwhelmed community mental health resources. Although recommendations for programming and social skills training were made during the deinstitutionalization of the mentally ill in the late 1970s (Bachrach, 1978), many mentally ill persons were left in the community to fend for themselves. Those who were and are unsuccessful regularly come into contact with the legal system, and may end up in state and federal prisons where their mental illness and co-morbid substance abuse disorders may be under-identified and untreated.

Mental Illness in the Prison System

The rate of incarcerated individuals in the United States continues to grow, with nearly 2.2 million of the U.S. population behind bars (BOJ, 2006a; Ford & Trestman, 2005). Due to the influx of incarcerated individuals and prison overcrowding, many inmates with mental illness and co-occurring substance abuse problems are unidentified and untreated. This is a societal safety concern due to the potential danger to correctional staff and inmates in an ever growing and increasingly unstable system. Additionally, offenders will eventually complete their sentences and be released back into their communities. It is necessary to rapidly and readily identify cases of mental illness and co-

occurring substance abuse during the initial intake or reception process in prisons in order to ensure and direct proper identification and treatment throughout incarceration.

Three decades ago, mentally ill persons would have received medication, symptom management, and assistance in daily functioning in residential community mental health institutions. Following the closing of these long term care facilities, society has witnessed an influx in the incarceration of mentally ill individuals in state and federal prison systems. In a Bureau of Justice Statistics Bulletin, Beck (2000) reported a 91% nationwide increase in the number of prison inmates. A study on the prevalence of mental disorders in remanded (awaiting trial) inmates in a Durham prison for men in the United Kingdom found that of 569 screened during the prison reception process, or while awaiting trial, 26% (148) of new prisoners had a current mental illness. Nearly one third (24) of those identified as being mentally ill were recognized as having a serious mental disorder. This study validates the fact that mental disorders in men entering prison often go undetected and untreated (Birmingham, Mason, & Grubin, 1996).

A recent Justice Department's Bureau of Justice Statistics study (2006) reported that in 2005 more than half of all prison and jail inmates were identified as suffering from a mental health problem. Specifically, this study found that 705,600 (56%) of state prisoners, 70,200 (45%) of federal prisoners, and 479,900 (64%) of jail inmates reported experiencing symptoms of mental illness in the past year. Yet only one in three state prisoners, one in four federal prisoners, and one in six jail inmates with mental health problems had received mental health treatment since being incarcerated (BOJ, 2006).

Depressive, anxiety, and psychotic disorders are common forms of mental illness found in individuals entering adult prisons (Steadman, Fabisiak, Devoskin, & Holohan, 1987). Also prevalent is the occurrence of co-morbid substance abuse (Abram & Teplin, 1991). Estimates suggest that nearly 20% of incarcerated adults in the United States have a severe mental illness and that 75% have a co-occurring substance use disorder (American Psychiatric Association, 2000b). When individuals suffer from substance abuse or substance dependence problems and mental illness simultaneously, they face significant complications in effective social functioning, and often experience complications with treatment.

McCorkle (1995) compared psychopathology and institutional behavior in 13,711 mentally ill state prison inmates. Findings indicated that women inmates were twice as likely as male inmates to have been on medication at the time of admission (10.8 % vs. 6.7%). They also were more likely than males (34% vs. 20.3%) to have taken prescribed medication for mental health or emotional problems. Additionally, data demonstrated that inmates who had previously utilized mental health services had significantly greater occurrences of disciplinary problems while incarcerated. Although there was not a significant correlation between inmates with mental illness and behavior disturbances in male inmates, there was a stronger relationship between mental illness and institutional violations among female inmates. Overall, findings suggested that although mentally ill inmates can cope with prison, females have a harder time adjusting to a prison environment than their male counterparts.

There is a large gap in the literature when it comes to gender and the issue of assessment for mental health in the correctional system, specifically, most of the literature assessing the prevalence of mental illness focuses on males (Diamond, Wang, Holzer III, Thomas & Cruser, 2001; Teplin, 1990a). A need exists for validity data on a mental health screen with both male and female inmate populations.

In a study of 13,816 people receiving mental health services from the Massachusetts Department of Mental Health from 1991 to 1992, 28% were identified as having experienced at least one arrest. Results revealed that individuals with severe mental illness and sociodemographic features similar to offenders in the general population had a higher likelihood of arrest (Fisher et al., 2006).

In an article about correctional psychiatry, Metzner and Dvoskin (2006) remark on the impact of supermaximum security confinement (which generally means that inmates are isolated for up to 23 hours a day) in U.S. prison systems. The authors support the existence of a general consensus among clinicians that inmates with serious mental illness should not be placed in this most restrictive supermax status. They further propose the possibility of symptomatic decomposition and the likelihood that a supermax environment is not conducive to psychological symptom improvement (Metzner & Dvoskin, 2006). They write that "except in the most extraordinary and dangerous circumstances, no one should be housed in segregation while they are acutely psychotic, suicidal, or otherwise in the midst of a psychiatric crisis" (Metzner & Dvoskin, p. 763).

Advisements are provided for the standardization of mental health care for inmates through the use of mental heath screening, or transfer to specialized mental

health programs within the institution that adhere to specific treatment guidelines. Metzner and Dvoskin (2006) further recommend the implementation of careful screening, monitoring, and removal policies to ensure that psychologically vulnerable and mentally ill prisoners are either not placed in supermax prisons at all, or removed from supermax institutions if they deteriorate once there. Metzner and Dvoskin suggest continued research on supermax confinement including (a) repeated measures to assess for decompensation in inmates across time, (b) the use of a control group to determine if significant psychological changes can be attributed specifically to the lock-down environment instead of the general prison environment, (c) that repeated measures include a variety of psychological measures (e.g., suicidal ideation, hopelessness, or psychotic symptoms), and finally, (d) that assessments consider multiple sources (e.g., inmate self report, clinician, correctional officer (Metzner & Dvoskin)).

A literature review by Diamond et al. (2001) indicates that the prevalence of mental illness is higher in prisons than in the community. In a meta-analysis of prevalence studies, small sample sizes and nonrepresentative subject populations were identified as weaknesses. This study concluded that prisons have higher rates of mentally ill offenders than jails, and that jails have higher rates of mental illness than non-incarcerated individuals do in the community. Recommendations were made for the implementation of structured interview techniques to assess the rates of lifetime and current mental disorders, as well as neuropsychological impairment and personality disorders. Diamond et al., also proposed the implementation of training and programming designed to address psychiatric co-morbidity and functional and neuropsychological

problems while offenders are incarcerated, as well as after their release. Consideration of risk factors such as gender, ethnicity, age, socioeconomic status, and co-morbid substance abuse was also discussed.

Inmates incarcerated in state and federal jail and correctional systems have a constitutional right to medical and mental health treatment (Cohen & Dvoskin, 1992, Morris, Steadman & Veysey, 1997). In the 1976 Supreme Court ruling of Estelle v. Gamble, withholding medical care from prisoners was determined to be cruel and unusual punishment and a violation of the Eighth Amendment.

In another important study, a meta-analysis assessing the prevalence of mental illness in prison outlined six criteria of an adequate system of mental health care established by the Ruiz versus Estelle (1980) decision. The authors recommend that an adequate correctional mental health system consist of the following components (Diamond et al., 2001).

1. A systematic program for screening and evaluating inmates to identify those with mental health needs;

2. Active treatment and intervention beyond segregation and close supervision;

3. Treatment by trained mental health professionals in sufficient numbers to identify and provide individualized treatment to treatable inmates suffering from serious mental disorders;

4. Accurate, complete, and confidential records of the mental health treatment process;

5. Appropriate medication practices; and

6. A program for the identification, treatment, and supervision of inmates with

suicidal tendencies.

To address the need for mental health reform in prisons, Metzner (2002)

summarized the demographics of correctional populations, outlined the costs of

correctional health care, and reviewed class action litigation that impacts the right to

mental health treatment in jails and prisons. This article reported psychiatric disorders

resulting in significant functional disabilities in 8% to 19% of prison inmates, while an

additional 15% to 20% of inmates needed psychiatric intervention while incarcerated. It

described a $2.5 billion nationwide expenditure by states for prisoner medical and dental

care which per inmate costs annually on average $2,386.00 or $6.54 each day (Metzner,

2006). In outlining several related legal cases, he reminds correctional mental health staff

that inmates have basic human rights protected by the Constitution, and that violations of

these rights can result in legal action needed to assist in the development of policies and

procedures to ensure appropriate mental health care for state and federal inmates. Finally,

the author suggests that psychiatric staff working in correctional settings provide the

same level of mental health care to inmate patients as the inmates would receive in the

community.

Metzner (2006) argues for a three tiered approach to mental health treatment in

prisons to include (a) the proper implementation of suicide prevention plans, (b)

excluding mentally ill inmates from housing in supermaximum security prisons, and (c)

adequate discharge planning that includes medication, referral to community mental

health, appropriate housing, and assistance in obtaining financial benefits. Given the

current state of affairs, state and federal prison systems have struggled to meet the intake, classification, assessment, and treatment procedures recommended as minimum accreditation standards by the National Commission on Correctional Health Care or the American Correctional Association.

Assessment and Screening in Correctional Populations

The correctional mental health community is witnessing an influx of individuals with mental illness and co-occurring substance abuse disorders being arrested and sentenced to serve time in prisons. A six-item semi–structured screening tool was developed and evaluated by researchers for use in a male prison population in the United Kingdom to assess severe mental illness in inmates based on the observational assessment of prison officers. This research found that 38% of cases identified by the screen as exhibiting odd, strange, or behavioral disturbances were identified as having severe mental illness in follow-up diagnostic interviews (Birmingham & Mullee, 2005).

The types of changes required to successfully implement a mental health screening protocol into a male remand (reception) prison were tested at the HMP Holme House in Stockton-on-Tees (Gavin, Parsons, & Grubin, 2003). The authors proposed that large increases in psychiatric resources would not be needed if a mental health screening process were in place. A four item mental health-screening questionnaire was administered to 616 new receptions to the prison. Of those screened, 201 (33%) were positive on one or more of the questions. Of those who screened positive, 43 (19%) were interviewed to assess for the presence of mental illness, personality disorder, substance dependency and learning disability. Results indicated that 10 (24%) received a

preliminary diagnosis of mental illness: acute psychosis (7%), major depression (14%), minor depression (2%); while a diagnosis was not given to three-fourths of those interviewed (Gavin et al., 2003).

Five (12%) of the 43 inmates identified by the questionnaire and given a 15-30 minute follow-up interview showed signs of gross personality dysfunction. Of those with personality disorders, three inmates showed signs of substance abuse. Two (5%) were expected of having a learning disability and were also co-morbid for substance dependence. Overall, 201 (36% of the entire sample screened) were positive for serious mental illness and 24 (56%) of the 43 men interviewed reported symptoms of substance dependence. Of those seen for follow-up interview 10 (23%) received a mental health diagnosis with severe mental illness being identified in nine inmates (Gavin et al., 2003).

These findings suggest that while reorganization of the way in which services are delivered will likely be necessary, the additional demands placed on psychiatric resources were not significant in relation to those inmates identified by this brief screening as needing further evaluation for the presence of mental illness. The degree to which this screening identified substance abuse in those who also screened positive for severe mental illness was also considered.

Smith and Borland (1999) studied the prevalence of non-psychiatric disturbance in women prisoners in England. The general health questionnaire (GHQ) was given to 214 female prisoners. Of the 204 women who completed the questionnaire, 102 (57%) were identified as showing evidence of a short-term psychiatric disorder. When extrapolated, the research group accounted for 28.5% of the total prison population in the

three facilities participating in the study, suggesting a high prevalence of potential psychiatric cases (Smith & Borland, 1999). Researchers tested the utility of a standard measurement of psychological distress with female inmates and found the GHQ to be effective at identifying prisoners experiencing high levels of anxiety and depression who may be at risk for developing mental illness. Results indicate that the GHQ is also useful for measuring psychological well-being across time. These findings suggest that improvements to the management, environment, and health care be made available to female inmates.

Even though several screening tools have been used to identify symptoms indicative of potential mental disorders in prison and jail populations, there is no tool that has been proven valid and reliable in identifying mental illness in men and women in a prison population. Questions have also been raised about the reliability of psychological tests administered during intake as they relate to the potential for fluctuation in test scores, because of the situational stressors associated with entering a prison system (Pierce, 1972; Sultan, Long & Kiefer, 1986; Von Cleve, Jemelka & Trupin, 1991). Furthermore, many screening tools and symptom checklists such as the Minnesota Multiphasic Personality Inventory-2 (Butcher & Rouse, 1996), Beck Depression Inventory (Beck, Ward & Mendelson, 1961; Boothby & Durham, 1999), Symptom Checklist-90 (Derogatis, 1975) and the Brief Symptom Inventory (Derogatis, 1993) are based on self-report, focus on symptoms that have peen present for a shorter duration of time, and may take an extensive amount of time to complete.

Teplin and Swartz (1989) developed a 14-item screening tool called the Referral Decision Scale (RDS) that identified schizophrenia, major depression, and bipolar disorder in jail populations. It was developed by examining individual symptom differences on the National Institute of Mental Health (NIMH) Diagnostic Interview Schedule (DIS; Robins, Helzer, Croghan, & Ratcliff, 1981). Discrimination Function Analysis were utilized on individual items in the study (Teplin & Swartz) to determine which specific subtests best discriminated between 728 mentally ill and non-mentally ill jail detainees. The subscales identifying depression, bi-polar disorder, and schizophrenia showed on average .99 specificity for predicting DIS diagnoses. A later cross validation study of the RDS (Hart, Roesch, Corrado & Cox, 1993) with 615 jail detainees questioned the effectiveness of the RDS as a screen for mentally ill jail detainees. Later studies (DiCataldo, Grier, & Profit, 1995; Veysey, Steadman, Morissey, Johnsen, & Beckstead, 1998) researched limitations with the use of the RSD in jails. They found that the use of the RDS resulted in false positives.

Rogers, Sewell, Ustad, Reinhardt, and Edwards (1995) further assessed the RDS for convergent and discriminant validity in a preselected sample of 108 mentally disordered offenders. Their findings, when validated with the Schedule of Affective Disorders and Schizophrenia- Change Version (SADS-C) and the Personality Assessment Inventory (PAI) indicated that the RDS provided only moderate evidence of convergent validity and did not demonstrate acceptable discriminate validity, due to higher correlations on RDS subscales. They argued that these results, combined with evidence of the RDS's poor positive predictive power (.19) (Hart et al., 1993) and the RDS's

inattention to suicide and other problematic behavior, indicated that this instrument should only be used as a gross screen for psychological impairment in forensic settings (Rogers et al., 1993).

Ford and Trestman (2005) used exploratory and confirmatory factor analyses to develop a Correctional Mental Health Screen (CMHS) from five psychometric questionnaires. The purpose of their research was to develop the CMHS to identify jail detainees during intake that needed further mental health evaluation for unidentified psychiatric impairment. Screening modules were administered to 2,196 jail detainees (670 women and 1526 men) in a Connecticut State jail. The screening included the Structured Clinical Interview-Patient version for DSM-IV (SCID-S; Spitzer, Williams, Gibbon, & First, 1990), Primary Care PTSD Screen (PC-PTSD; Prins, Kimberling, Cameron, Ouimette, & Shaw, 1999), Iowa Personality Disorders Screen (IPDS; Langebehn et al., 1999), Referral Decision Scale (RDS; Teplin & Swartz, 1989), and a follow-up structured clinical interview using the Structured Clinical Interview for DSMIV- Patient Version (SCID-P; Spitzer et al., 1990). Exploratory and confirmatory factor analyses identified subsets of items to make up the Composite Mental Health Screen (CMHS). The CMHS identified dichotomous items, eight for women (Correctional Mental Health Screening-Female; CMHS-F), and twelve for men (Correctional Mental Health Screen-Males; CMHS-M) that were statistically significant. They found that 34% of inmates manifested affective symptoms (Depression 32.3%, Mania 1.6%, Hypomania 0.2%). Percentages of Anxiety Disorders was; Panic Disorder 26.1%, Panic Disorder with Agoraphobia 8.2%, Social Phobia 3.4%, Specific Phobia

9.6%, Generalized Anxiety Disorder 9.6%, and Anxiety Disorder NOS 2.2%. Over 28% of the inmates reported Posttraumatic Stress Disorder, and 34.6% met the criteria for Antisocial Personality Disorder. In the second phase of research, the CMHS was administered to 206 jail detainees. Discriminate analysis identified nine diagnostic categories that were statistically significant. Mental health diagnoses were found in 50.7% of female detainees and 49.2% of jail detainees. Prevalence rates were assessed as high as or higher than those generally found in psychiatric settings. Specifically, the presence of Posttraumatic Stress Disorder and Personality Disorders were notable. Researchers suggest that the use of the CMHS may help to standardize screening practices in correctional settings nationwide. However, the instrument was validated in a jail population and has not been tested to determine if the findings are valid for inmates confined in a prison setting.

While there are currently screening tools available that have demonstrated some reliability and validity in screening mental illness in correctional settings, including the Referral Decision Scale (Teplin & Swartz, 1989; Rogers et al., 1995) the Correctional Mental Health Screen (Ford & Trestman, 2005; Ford Trestman, Wiesbrock, & Zhang, 2007) the Brief Jail Mental Health Screen (Steadman, Scott, Osher, Agnes & Robbins, 2005), there are limitations with their use in identifying symptoms of mental illness in a prison population with inmates who may have co-morbid substance abuse.

In terms of the validation of the Brief Jail Mental Health Screen (BJMHC), it was tested at four jails on the east coast with 10,330 jail detainees. Findings indicated that the BJMHS correctly classified 73.5 % of male jail detainees and 61.6% of female jail

detainees when cross validated with the Structured Clinical Interview for DSM-IV (SCID). Overall, it identified 11.3% of screened detainees for further mental health assessment. However, the BJMHC was not as effective at identifying mental disorders in women. Results indicated that the screen failed to identify 34.7% of women with current mental health symptoms, while 41.5% of women who were identified for psychiatric referral did not have a serious mental health diagnosis. Additionally, 14.6% of male detainees with current acute symptoms were discovered to have been missed by the BJMHS when compared to correctional officer feedback, resulting in false negatives. While the BJMHS was found to be more effective than other screens at identifying serious mental illness in jails, results suggest that additional research is necessary to increase the true positive rate when using this screen with female jail detainees. Consequently, because jail detainees are generally incarcerated for short periods of time after being charged with a crime but before being convicted, or after having been sentenced to a relatively short sentence, it is difficult to determine if these same results would hold true in prison inmates who have been convicted of or plead guilty to their offense and are expecting to serve longer prison terms.

In an investigation of the treatment of mental illness at the Cook County Jail (Teplin, 1990b), the National Interview of Mental Health Diagnostic Interview Schedule (NIMH-DIS) was administered to 728 male jail detainees at intake. The NIMH-DIS was designed to separate remitted disorders (lifetime) from disorders with recent symptoms (current). After being administered the NIMHDIS, jail detainees were followed throughout their stay at the jail to determine if treatment was administered. False negative

errors (mental illness existed but was not detected) occurred in 62.5% of subjects, while false positive errors (no presence of mental illness but mental illness was detected) accounted for only 4.6 % of subjects. Of those subjects identified as having a severe mental illness, only 37.5% received treatment within a week of their intake (Teplin, 1990b).

Boothby & Durham (1999) administered the Beck Depression Inventory (BDI) to assess symptoms of depression in the North Carolina state prison system. Findings indicated that more than half (57%) of the 1,494 inmates had BDI scores that ranged between mild to severe depression, suggesting an over identification of inmates endorsing depressive symptoms. Female inmates, inmates under the age of 20, and close custody inmates obtained even higher BDI scores than other groups (65%-75% of BDI scores fell between ranges of mild to severe depression). Boothby and Durham suggested that further research assessing depression in prisons consider gender, age, and custody classification be carried out and that BDI cutoff scores be modified (one standard deviation or a score of 20) when assessing mental illness in correctional populations.

When the generic issue of assessment/screening in correctional populations is examined, although several studies have been conducted with brief mental health screens in jail settings, there are important differences between jail and prison populations. Thus, the extent to which inferences from jail research can be applied to prison settings is limited. Specific research needs to be conducted that focuses on screening for mental illness in inmates entering the prison system. Prison inmates generally transfer from jail facilities after having been convicted of a crime and sentenced. In addition, inmates may

enter the prison system from jails after being revoked back to prisons from the community. This can happen either as a result of revocation from probation or parole often due to failing to meet the conditions of release. Unlike in jails, many prison inmates are facing long sentences resulting in extended losses (rather that than briefer losses as seen with jail inmates) in employment, property, living environments, and familial relationships.

The Mini International Neuropsychiatric Interview plus (MINI-plus)

The Mini International Neuropsychiatric Interview (MINI) is a short, structured diagnostic interview developed in 1990 in France and the United States to explore the occurrence of 17 disorders according to Diagnostic and Statistical Manual (DSM-IV) and International Classification for Diseases (ICD-10) criteria. There are one or two screening questions for each of the seventeen disorders, such that when answered negatively rule out the diagnosis. The MINI has been validated against the Structured Clinical Interview for DSM diagnoses, Patient Version (SCID-P) and found to have good kappa values across 22 diagnoses (kappa values ranged from .51 to.90) with only diagnoses for drug dependence falling below 0.50. Studies testing the validity of the MINI, inter-rater and test-retest reliability were also found to be at acceptable levels (Lecrubier et al., 1997; Sheehan et al., 1997; Sheehan et al., 1998). There are several versions of the MINI. The Mini International Neuropsychiatric Interview plus (MINI-plus) explores current and lifetime time frames for all modules included in the original MINI. The Mini International Neuropsychiatric Screen was developed for a briefer administration and has

eliminated the modules (L) Psychotic and Mood Disorders with Psychotic features and (P) Antisocial Personality Disorder.

A pilot study was conducted in the Iowa Department of Corrections to test the utility of the Mini International Neuropsychiatric Interview plus (MINI-plus) as a screening tool for Axis I disorders and antisocial personality disorder in prisons (Black, Arndt, Hales & Rogerson, 2004). The MINI-plus is a structured interview that assesses the presence of DSM-IV diagnoses across different time points; current, past and life-time. It uses several modules to diagnose the presence of mood disorders, anxiety disorders, psychotic disorders, eating disorders, conduct disorders, and adjustment disorders. It can also diagnose attention deficit hyperactivity disorder and antisocial personality disorder.

In the pilot study (Black et al., 2004), all newly committed offenders in the Iowa Department of Corrections admitted to the Iowa Medical and Classification Center (IMCC) participating in the reception and intake process (health screening, orientation to the Iowa Correctional System, and institutional assignment) were eligible. Sixty-seven subjects were selected for participation in the study from the list of incoming offenders. To increase the number of women and minority participants, the authors included all women and minorities participating in the intake process on screening days. Additionally, every fifth white male was interviewed. The MINI-plus was then administered by correctional staff to subjects as part of the intake process.

Psychometric data from the instrument indicated the following; the MINI-plus had a mean of 2.8 with a standard deviation of 2.8. The scores ranged from 0 to 13. A

total of 81% of subjects met criteria for at least one lifetime disorder based on MINI-plus identification. Results indicated that of those subjects identified with lifetime disorders, 39% had a mood disorder, 30% had an anxiety disorder, 18% had a psychotic disorder, and 79% had a substance abuse disorder. The presence of Attention Deficit Hyperactivity Disorder was also identified. Lifetime antisocial personality disorder was identified in 13 subjects and accounted for 19% of the population. In rating current suicide risk, the MINI-plus identified 7% of the subjects as high risk for suicide, 24 % at low risk, and the remaining subjects were found not to be at risk for suicide. Based on the results of the MINI-plus in accordance with other intake data, 13% of the subjects were referred to prison psychiatrists (Black et al., 2004).

This preliminary study evaluating the use of the MINI-plus as a screening tool in prisons concluded that the administration of the MINI-plus during the intake reception process, when used in conjunction with other methods currently utilized (records review, health assessment) indicated a high prevalence (81 %) of lifetime mental disorders and substance abuse use (79 %). Furthermore, in the study sample it produced four more referrals than would have been made in the regular screening process at IMCC. Above all, the MINI-plus was successful in identifying the need for urgent referral in nine cases related to diagnosis of major depression, current psychosis, or high suicide risk (Black et al., 2004).)

Prevalence findings from the study were consistent with previous research results of psychiatric disorders in incarcerated women, in which 80% of female offenders were identified as having one or more lifetime disorders (Teplin, Abram & McLellan, 1996).

However, Black et al., (2004) identified several obstacles to the implementation of the MINI-plus in the prison setting. In particular, it took on average 41 minutes to administer the Mini-plus to offenders. This is challenging in prison settings when offender overcrowding and staff shortages render time a central consideration. Secondly, because the MINI-plus did not account for severity of symptom presentation or malingering of symptoms, there was concern that this screening tool might possibly over identify mental disorders, resulting in unnecessary referrals. Lastly, correctional staff at IMCC did not find the addition of the MINI-plus superior to current screening methods. Suggestions were made by the authors to conduct further research related to this screen in prison settings, and options for measuring the usefulness of the original MINI (which has fewer modules than the MINI-plus but takes about only twenty minutes to administer) or the computerized version of the MINI (that could be self administered by offenders with minimal staff supervision).

In summary, the Black et al., (2004) pilot study found the MINI-plus to be a helpful tool in enhancing the screening process in a prison intake setting. Specifically, it was found to be straightforward to teach to correctional staff and easy for staff to administer to inmates. They also found it to be well accepted by prison offenders. Most importantly, research results found the MINI-plus to be effective at generating information about the presence of inmate mental health problems and substance abuse, thus providing useful data needed by IMCC to classify inmates. However, this study also indicated that the MINI-plus took too long to administer and generated unnecessary referrals to psychiatry, by over identifying mental illness in some inmates who might be

experiencing temporary symptoms of anxiety or depression related to adjustment issues, or inmates who were feigning or malingering symptoms. Finally, the overall feedback from prison staff was that when the benefits of the MINI-plus were weighed against the cost of staff training and staff time in administration of the MINI-plus to inmates, they did not feel that it truly enhanced the screening process. Due to these somewhat ambiguous findings, the overriding purpose of the current study was to test the utility of the Modified Mini Screen (MMS) (see Appendix A), a modification of the MINI that can be administered to inmates in a much briefer period of time while providing relevant mental health information that could lead to further referral.

<div align="center">Research Questions</div>

The core research question that was addressed in this study was whether the Modified Mini Screen (MMS) meets acceptable levels of validity and reliability when compared to a "gold standard" measure. The Brief Symptom Inventory was used as the "gold standard" of measure (Derogatis, 1975). To effectively validate the MMS, analyses examined the ability of the MMS to predict the presence of psychological distress identified by the BSI.

Research Question 1: Is the MMS a reliable and valid instrument for screening mood, anxiety, psychotic, and substance abuse disorders in a state prison system? The validity was determined by comparing the results of the MMS with the results of the BSI. To assess whether the Modified Mini Screen is a valid screening measure, 130 individual's MMS scores, obtained in the usual intake classification process, were

compared with results from the BSI to determine the proportion in each group with mental illness.

Research Question 2: The relationship of the MMS to other variables was also assessed. Normative data and analysis of demographic variables were evaluated to determine if results support the use of this tool in a prison population. Variables including age, gender, educational level, race/ethnicity, type of offenses, substance abuse history, and past mental health history were considered.

In summary, there continues to be an influx in the number of people entering prisons with pre-existing mental health conditions. Additionally, many inmates will develop mental health concerns during the course of their incarceration. Although there have been several efforts across time to utilize a mental health screening tool during the reception process in correctional populations (Birmingham & Mullee, 2005; Steadman et al., 2005; Veysey et al., 1998; Von Cleve et al., 1991), further research is needed to develop and implement an accurate and time effective method of determining the mental health needs of prisoners. The National Commission on Correctional Health Care has presented standards that promote the implementation of medical and mental health assessment at reception (NCHC, 1992). This research examined the utility of the Modified Mini Screen (MMS) in identifying symptoms of mental illness at intake in a reception prison population. This research was intended to test utility by (a) distinguishing between prisons inmates presenting with symptoms associated with a mental disorder and those without a mental disorder, (b) comparing psychological disorders identified by the Modified Mini Screen with psychological disorders identified

by the Brief Symptom Inventory, and (c) by revealing within sample differences by examining additional variables relevant to incarcerated persons.

CHAPTER II

METHODOLOGY

<u>Overview</u>

Prison systems are in need of a brief mental health screening tool that can rapidly and readily identify individuals with mental illness and co-occurring substance abuse. The Modified Mini Screen (MMS) was designed with support from the New York State Office of Alcoholism and Substance Abuse Services (OASAS) and the Office of Mental Health (OMH). The Nathan Kline Institute for Psychiatric Research validated the MMS as a screening tool for co-occurring disorders in both male and female populations (N=338) receiving treatment in the community at 17 OASAS-certified chemical dependency treatment centers throughout the state of New York (OASAS, 2005). Thus far, no research has been conducted to assess the validity and reliability of MMS with prison inmate populations. This is problematic considering that the MMS is currently being administered to nearly every inmate entering the Iowa Department of Corrections prison system as part of the standardized intake process.

While the initial construct of the MMS was intended to identify mental or emotional problems in people accessing community drug and alcohol treatment facilities, it has the potential for being a very practical instrument in prisons that service the same population. By screening for three categories, (a) Mood Disorder: characterized by extreme emotions such as those seen in major depression, bipolar disorder, and dysthymia; (b) Anxiety Disorders: characterized by powerful fears and avoidance behaviors identified by diagnosis including post-traumatic stress disorder, obsessive

compulsive disorder, social phobias, agoraphobia, and generalized anxiety disorder; and

(c) Psychotic Disorders: that include severe mental illness like schizophrenia (OASAS,

2002) this instrument could prove efficient, timely, and provide useful information to

correctional systems during the reception process at intake. Prison intake facilities

generally see a high number of offenders for a brief duration of time so that they can be

classified and housed at correctional facilities according to their security status

(minimum, medium, and maximum), programming/ reintegration (educational and

technical, substance abuse treatment, and domestic violence) and health/mental health

needs. During the intake process, offenders are often housed on locked units with little

time out of their cells. Correctional staff seldom have more than limited contact with

offenders unless they are exhibiting odd or bizarre behavior or are otherwise seen as

disruptive to the prison environment. This makes it difficult at best to identify overt

symptoms of mental illness that can be observed through direct observation. It is even

harder to recognize covert symptoms or less obvious signs of mental illness.

There are currently no additional mental health screening tools being

implemented as a part of the intake and reception process at the Iowa Medical and

Classification System. A standard screen that is both brief and useful at discriminating

between healthy and mentally ill offenders would significantly improve the approach to

mental health diagnosis and treatment in and throughout an offender's incarceration.

In validating the Brief Jail Mental Health Screen (BJMHS), Steadman et al.,

(2005) identified three necessary criteria of a useful mental health-screening tool. First, a

functional mental health screen should demonstrate a low percentage of false negatives in

that it does not fail to identify inmates who have a serious mental disorder. Secondly, a useful screen should not have an increased false positive rate and identify mental illness in offenders who do not genuinely have psychiatric symptoms. With the current state of prisons and the management of overcrowding, staff shortages, and limited resources, it is not cost effective to allocate monies and resources to the evaluation and treatment of mental illness in healthy offenders. The information gained from the screen needs to be successful at alerting mental health staff to the existence of mental disorders and substance abuse without over-identifying symptoms where they do not exist. Finally, a valuable screen should evidence a high degree of predictive validity. Specifically, those offenders identified as having a mental disorder should, upon further psychiatric evaluation, be diagnosed with a treatable mental illness.

The rate of incarcerated individuals in the United States continues to grow, with nearly 2.2 million of the U.S. population behind bars (BOJ, 2006; Ford & Trestman, 2005). Due to the influx of incarcerated individuals and prison overcrowding, many inmates with mental illness and co-occurring substance abuse problems will go unidentified and untreated. The Modified Mini Screen (MMS) is currently being administered to nearly every inmate entering the Iowa Department of Corrections prison system as part of the standardized intake process. Prison systems are in need of a brief mental health-screening tool that can rapidly and readily identify individuals with mental illness and co-occurring substance abuse. The MMS may prove to be a cost-effective tool and have a significant role in identifying mental illness in prison populations.

Therefore, the purpose of this study was to determine if the MMS is a valid and reliable in screening for mental illness with prison inmate populations. This study was designed to validate the MMS for identifying mood disorders, anxiety disorders, and psychotic disorders in newly admitted inmates during the intake and reception process in prisons. If found to be effective, the Modified Mini Screen could be implemented as a standard measure in the reception process and restructure the intake process in prisons throughout the US and abroad. Hopefully the results of this study will also be helpful to officials at the Iowa Medical and Classification Center.

<div align="center">Participants</div>

This research utilized a data set that was created through collaboration with the Iowa Medical and Classification Center (IMCC), a medical and classification prison at Oakdale, Iowa. Permission for this project was obtained from Dr. Leonard Welsh, Clinical Psychologist in the Iowa Department of Corrections, Warden, Lowell Brandt, Donald Black, and Bruce Sielini. The subject pool consisted of 130 randomly sampled newly admitted male and female offenders entering the Iowa Department of Corrections system. Each of the 130 subjects, (110 male and 20 female) completed the 22-item MMS as a routine part of the intake process designed to gather information relevant to their overall health status. As a function of this study, they were then invited to complete a demographic interview and the self-administered 53-item Brief Symptom Inventory (Derogatis, 1975).

The study participants were 130adult offenders (110 men and 20 women between the ages of 18 to 58 years [M=31.79 years, SD=10.07 years]) participating in the Iowa

Department of Corrections classification process. They were randomly sampled from the intake prison population between August 2007 and October 2007.

<div align="center">Procedures</div>

Offenders are administered the MMS as a function of the standard intake process for newly admitted offenders in the Iowa Department of Corrections at the Iowa Medical and Classification Center (IMCC). This study is a follow-up to an initial study conducted by Black et al. (2004). The initial study used the MINI-plus to assess a random sample of offenders newly committed to the Iowa Department of Corrections. Prison officials conducted the study following an administrative directive as a means of collecting diagnostic information on offenders in the reception process. A second principle of the original study included testing the usefulness of a screening instrument in a prison population (Black et al.). Offenders are generally screened for mental illness within the first two weeks of incarceration at IMCC using the MMS. In accordance with the Iowa Department of Corrections general policy, no compensation was offered for participation in the current study.

The MMS was given to each inmate as is customary during the evaluation and classification process. To secure a random sample, the primary investigator approached newly admitted offenders participating in the classification process during a five-day period. The researcher obtained a list of offenders in the classification process from facility administrators each day with the name and inmate number of all inmates scheduled to take part in the assessment process. A numerical random sampling method was used to select offenders at the Iowa Medical and Classification Center participating

in the intake process during the week of the data collection. Potential subjects were approached by correctional staff during the customary intake process and made aware of the study. Subjects were invited to participate in the research study and asked to review a copy of the informed consent form. Potential subjects were provided with information about the research study that was easy to read and understandable. The researcher reviewed the consent form with potential subjects, addressed any questions or concerns about the material, and informed the potential subject that participation was voluntary.

The researcher evaluated the potential subject's comprehension of the content of the consent document and their capacity to consent to participation in the study prior to obtaining informed consent. In order to ensure comprehension of the consent document, each potential participant was evaluated using the "Evaluation to sign an Informed Consent Document". Additionally, each potential participant was asked to describe in their own words, the purpose of the study, what he or she was being asked to do, and that study participation would have no impact on their incarceration, length of sentencing, or the programs and services available to them.

Only the intake records and Brief Symptom Inventory protocols of potential subjects who had provided directly their written informed consent for participation in the research study were used. The sample population included new admissions into IMCC participating in the facilities routine assessment and evaluation process. All individuals invited to participate in the study were able to read and comprehend English. There were no additional inclusion/exclusion criteria. The racial, gender and ethnic characteristics of the individuals approached for participation in the study reflected the demographics of

inmates in the Iowa Department of Corrections. The primary researcher sampled

participants from these demographics. No individuals were excluded from participation

in the study based on race, ethnicity, or gender. The BSI and a demographic

questionnaire were administered at IMCC to each subject participating in the study.

MMS screens previously administered as part of the intake process were reviewed.

<div align="center">Instrumentation</div>

Demographic information including age, gender, race/ethnicity, education level,

mental health history and criminal history about each subject was collected using a

demographic questionnaire administered by the researcher to each of the study

participants.

<div align="center">Modified Mini Screen</div>

The Modified Mini Screen (MMS) is a 22-item scale developed by OASAS

(2001) designed to identify persons in need of assessment in the domains of Mood

Disorders, Anxiety Disorders, and Psychotic Disorders whose current mental health

status indicates a need for a more thorough assessment by a licensed practitioner. It asks

general questions that are similar to those found in several screening, diagnostic, and

assessment tools including the Structured Clinical Interview for Diagnosis (SCID; Spitzer

et al., 1988) and the Mini International Neuropsychiatric Interview (M.I.N.I.; Sheehan et

al., 1998).

The MMS was designed to be administered in approximately 15 minutes by any

clinician. It has been demonstrated to be effective in identifying individuals who may

exhibit symptoms of three major categories of mental illness; Mood Disorders, Anxiety

Disorders, and Psychotic Disorders (OASAS Clinical & Administrative Practice

Improvement [CAPRI] Series volume 1, number 1). It was validated in a collaborative

effort between the OASAS and the OMH with 383 adults at 17 sites including outpatient,

residential, methadone and inpatient settings for use as a mental health-screening tool by

the Nathan Kline Institute's Center for the Study of Public Mental Health.

The MMS is not a diagnostic or assessment tool. Instead "it uses a set of

'gateway' questions that relate to signs of distress that may be attributed to a diagnosable

psychiatric disorder" (OASAS, 2006). Authors emphasize that the MMS is not a

diagnostic tool and caution that no specific diagnose be inferred from its use.

For the purposes of this study, the MMS was scored according to the method

recommended by OASAS (OASAS User-Guide for the Modified Mini Screen MMS,

2006). A "yes response to a question translates to 1 point indicating that the client is

reporting distress. Clinicians add up all of the positive (yes) responses for a total score.

Respondents can obtain a raw score from 1-22, and may fall into three distinctive zones:

(a) those with a low likelihood of mental illness (1-5), (b) those with a moderate

likelihood of mental illness (6-9), and (c) those with a high likelihood of mental illness

(10-12). Although scores can range from 1-22, a threshold score of 6 and over

distinguishes that the patient has a moderate likelihood of suffering from a mental illness

and should be seriously considered (requiring the use of clinical judgment) for referral for

a detailed diagnostic interview. A threshold score over 9 identifies participants who have

a high likelihood of mental illness and should categorically be referred for a diagnostic

assessment. Additionally, question 4 on the MMS relates to suicidality. Any subject who

answered yes to this questioned should have been referred for further evaluation

regardless of the total score. In accordance with the scoring recommendations set by the

New York State Office of Alcoholism and Substance Abuse Services the cut point score

of 6 on the MMS was used to identify a moderate likelihood of mental illness in the study

population. Those subjects who responded to the MMS in a manner that indicated a

moderate likelihood of mental illness were identified for study purposes as "mentally ill".

   In this study, the MMS was administered to a random sample of offenders during

the intake process in the Iowa Department of Corrections. Subjects were administered the

22 item MMS questionnaire by prison clinical staff during the routine intake process.

MMS protocols for each subject were obtained by the researcher with the written consent

of the subjects for comparison to the Brief Symptom Inventory (BSI).

<div align="center">Brief Symptom Inventory</div>

   The Brief Symptom Inventory (BSI) is a 53-item self-report measure that was

developed from the Symptom Checklist- 90- Revised (SCL-90-R). The BSI measures

nine primary symptom dimensions (Somatization, Obsessive-compulsive behavior,

Interpersonal sensitivity, Depression, Anxiety, Hostility, Phobic anxiety, Paranoid

ideation, and Psychoticism). The BSI measures the experience of symptoms in the past

seven days including the day the BSI was completed. Answers are on a 5-point scale,

from 0 = *not at all*, to 4 = *extremely*. The BSI also measures current psychological status

and distress. Subjects are instructed to rate the intensity of distress that they have

experienced for each of the 53 items. Dimension scores are calculated by adding the

number of items included in that dimension and dividing by the total number of items in

the dimension. There are four items that do not factor into any of the dimensions on the BSI but are provide additional relevant clinical information. Raw scores are converted to t-scores using the manual.

The BSI also measures three global indices; the Global Severity Index (GSI), Positive Symptom Distress Index (PSDI), and Positive Symptom Total (PST). The Global Service Index (GSI) is made up of the total of the nine primary symptom dimensions plus the additional four items. The Positive Symptom Distress Index (PSDI) assesses the average level of stress a subject is reporting. The Positive Symptom Total (PST) is a count of all of the items with non-zero responses and reveals the number of symptoms a subjects reports experiencing. The Global Service Index (GSI) considers all 53 items and is the most sensitive gauge of a subjects overall distress level. The BSI Administration, Scoring, and Procedural Manual (Derogatis, 1993) provides normative data for non-patient adults, adult psychiatric outpatients, adult psychiatric inpatients, and adolescents between the ages of 13 and 17 years old. Psychometric data reports good internal consistency reliability for the nine dimensions being measured ranging from .71 on Psychoticism to .85 for Depression (Derogatis, 1993). Test retest reliability ranges from .68 for Somatization to .91 for Phobic Anxiety. Test re-test reliability on the Global Indices is .90 (GSI), .87 (PSDI), and .90 (PST) respectively. The BSI shows high convergent validity for the dimensions of the BSI with the scales of the MMPI according to the reanalysis of an earlier study that compared the Symptom Checklist 90 Revised (SCL-90-R) with the MMPI. The BSI also has strong construct and predictive validity (Derogatis, 1993).

Each subject who agreed to participate in the study was given a BSI to complete. In interpreting the results from the BSI, the operational definition of mental illness caseness was used as outlined in The BSI Administration, Scoring, and Procedural Manual (Derogatis, 1993). Specifically, subjects with a Global Service Index (GSI) greater than or equal to a T score of 63 were considered to be a positive case for mental illness. The data from the MMS screening questionnaire completed during the intake process was then compared with the diagnostic data from the BSI to assess its usefulness as a screening tool for mental illness in a prison population.

<u>Research Design and Analysis</u>

The purpose of this study was to determine if the MMS is a valid screen for detecting mental illness in a prison setting. Chi-Square tests of independence were performed in order to determine whether there was a significant relationship between the outcome of the MMS and the outcome of the BSI, both of which are dichotomous variables. Phi coefficients were used in order to assess the strength of the relationship between the outcomes of both instruments. Moreover, the sensitivity and specificity of the MMS was computed, using the outcomes from the BSI as a benchmark. These analyses were performed for the overall sample and also separately for males and females.

Chi-squared (χ^2) tests were used to assess relationships between the presence of mental illness and other variables. Specifically, the relationships between mental illness (by the MMS and the BSI) and race or ethnicity, gender, offense type, history of

substance abuse, and previous mental health diagnosis were evaluated. Phi coefficients were used in order to evaluate the strength of these relationships.

T tests were performed to assess differences in the mean age and number of years of education between subjects with a positive or negative screen for mental illness, separately for the BSI and the MMS instrument. All analyses were performed using the Statistical Analysis Software (SAS).

CHAPTER III

RESULTS

<u>Reliability Analysis</u>

The internal consistency reliability of the MMS scale was assessed using

Cronbach's Alpha. The alpha coefficient was 0.91 (n = 22 items), indicating that the

MMS scale exhibits adequate internal consistency reliability. Table A15 presents

descriptive statistics (mean and standard deviation) on the responses to each of the 22

items of the MMS. Given that all items were coded as 0 (No) or 1 (Yes), the mean of

each item indicates the proportion of respondents who responded "Yes" to that item. The

item mean in table A15 identifies the proportion of subjects in the study sample that

endorsed each item. Means for the total MMS score considering the 22 items means

ranged from 0.00 to 19.00 [M=5.20, SD=.5.31]. For the BSI item means for the sum of

the BSI symptom dimensions (how many subscales a person had a t-score at or

above 63) ranged from 0.00 to 9.00 [M=3.87, SD=3.40]. For individual items on the

MMS means ranged from .067 to .467 respectively. Results indicate that there was

variance in response rate across the items. Only 3% [M=.03, SD=.18] of subjects

responded yes on item number nineteen, "Have you ever believed that you were being

sent special messages through the TV, radio, or newspaper? Did you believe that

someone you did not personally know was particularly interested in you?" while 47% of

subjects [M=.47, SD=.50] responded yes on item number nine, "Have you worried

excessively or been anxious about several things over the past 6 months? For example, in

response to the first question 40 subjects (33%) of the study populations indicated that they had been depressed or down for the last two weeks.

<div align="center">Descriptive Statistics</div>

The frequency distribution for age and gender are presented in Table A1. As can be seen from this table, the most common age group among individuals in this sample was 20-29 (34.6%), followed by 30-39 (30.8%). Iowa department of Corrections statistics (Baldwin, 2008) indicate that the average age of individuals in custody by the Iowa Department of Corrections in 2007 was 35 years old. This is slightly older than the mean age of subjects who participated in the research study. Most (110) of the individuals in the sample were male (84.6%). There were only 20 female participants accounting for 15.4% of the study total. Of the subjects approached for participation there were none who refused to participate. Three subjects were not able to participate in the study although they acknowledged a desire to do so. Two potential subjects who had been invited to participate in the study were under 18 years-old and therefore did not meet the study age requirement. Finally, a female inmate who appeared cognitively delayed, requested to participate in the study but was not allowed because she had not been randomly sampled from the list of female intakes.

Table A2 presents the frequency distribution for ethnicity. The racial breakdown in the Iowa Department of Corrections is as follows; 5,753 (66.0%) White, 2,161 (25.0%) African-American, 142 (1.6%) Native American, 67 (0.8%) Asian, 536 (6.0%) Hispanic, and 33 (.04%) Unknown. As can be gleaned from this table, most of the individuals in the

study sample were Caucasian (66.2%), followed by African American (20.8%), Hispanic (6.2%), Native American (3.1%), and those who identified as Other (2.3%).

Table A3 presents the frequency distribution for education. Most of the individuals in the sample had not finished High School (53.8%). The next most common education level was High School Graduate (23.8%), followed by Some College (22.3%). It was found that 30.8% of participants in the sample had attended Special Education classes. The Iowa Department of Corrections indicates that the average level of education of its offenders is 11.6 indicating the eleventh grade in the 6th month.

In Table A4 is the frequency distribution for offense type and number of incarcerations. As the table indicates, the most common offense type in this study was Property Offense (43.8%), followed by Drug/Alcohol Offenses (36.9%), Assaultive/Violent Offenses (19.2%), Escape (2.3%), and Driving Offenses (2.3%). Finally, the most common number of incarcerations of a subject was one (43.1%), followed by two (23.1%). Moreover, 57.8% of individuals in the study population had committed crimes in the past.

Iowa Department of Corrections statistics indicate that in 2007 the institution population was made up of 43% of individuals who had committed a Violent Offense, 21% who had a Property Offense, 24% who had Drug/Alcohol offenses, and 12% that had committed other types of offenses. Notable in the findings is that the study population was not representative of the incarcerated population of Iowa inmates in terms of offense type. Specifically, the population of individuals who had committed a violent offense was significantly lower in the study population (19.2%) than the percentage of

violent offenders found in the Iowa Department of corrections general offender population (43%). Consultation with prison officials concluded that many violent offenders within the Iowa Department of Corrections are sent directly to a maximum security facility following sentencing. There they participate in the reception and intake process in a more secure setting than that afforded at the Iowa Medical and Classification Center.

Table A5 presents the frequency distribution for mental health history. As can be seen from this table, the majority of individuals had a past Mental Health History (56.9%), and 44.6% had carried a Past Clinical Diagnosis. It was found that 26.9% of individuals who participated in the study were currently on Psychiatric Medications.

Table A6 presents the frequency distribution for drug abuse history. In this table, data indicates that the most common drug abuse issues were with Alcohol (13.1%), followed by Opioids (10%), and Marijuana and Cocaine (7.7% each).

Relationship between outcomes from the MMS and the BSI

Research Question 1 asked "Is the MMS a reliable and valid instrument for screening mood, anxiety, psychotic, and substance abuse disorders in a state prison system?" In order to answer this question, the concurrent validity between the MMS and the BSI was examined. Both the MMS and BSI outcomes were measured as dichotomous variables: "mental illness not present" (coded with a 0) and "mental illness present" (coded with a 1). Cross-tabulation analysis between the results of both instruments was performed. Results are presented in Table A7.

Pearson's chi-square was performed in order to determine if there was a significant relationship between the diagnostics of both instruments. The null hypothesis of no relationship was rejected (Chi-square (1) = 35, p < 0.001). The Phi coefficient for the relationship between these two variables was 0.519, suggesting a moderate association between the outcomes of these two instruments.

The sensitivity of an instrument is defined as the proportion of people with a disease who have a positive test result. According to the BSI outcomes, there were 80 individuals in the sample with mental illness. Of these, the MMS identified 44 (55%) as being mentally ill. Therefore, the *sensitivity* of the MMS was 55%. The specificity of an instrument is defined as the proportion of people without a disease who have a negative test result. According to the BSI outcomes, there were 50 individuals in the sample who were not mentally ill. Of these, the MMS identified 48 (96%) as not being mentally ill. Therefore, the *specificity* of the MMS was 96%.

These results suggest that the sensitivity of the MMS is somewhat weak, as it only has a 55% chance of correctly identifying a mentally ill individual as being mentally ill. The same analyses were repeated separately for males and females. Results are presented in Table A8 and Table A9.

For both males and females, there was a significant relationship between the outcomes of the BSI and the outcomes of the MMS (Females: Chi-Square(1) = 11.08, p < 0.001; Males: Chi-Square(1) = 23.46, p < 0.001). The Phi coefficient was 0.763 for females and 0.4619 for males, suggesting that the relationship between the outcomes of both instruments was stronger for females than for males.

For females, the sensitivity of MMS was 87.5%, while the specificity was 100%. Moreover, for males, the sensitivity of MMS was 46.9%, while the specificity was 95.6%. These results suggest that the concurrent validity of the MMS with the BSI was better for females than for males in this population.

<div align="center">Relationship between MMS and other variables</div>

Research Question 2 asked whether MMS results were related to other characteristics of the individuals, such as age, gender, educational level, and so forth. Chi-square analyses and phi coefficients were computed to assess the relationship between MMS and other categorical variables. The same procedure was performed for theBSI, so as to compare the results between the two instruments. Results for the relationships between BSI and MMS diagnostics and demographic characteristic are presented in Table A10.

While BSI outcomes were not significantly related to gender, it was found that MMS outcomes were significantly related to gender. In particular, 70% of females were identified as mentally ill by the MMS, while only 29% of males were identified in this way. Moreover, while significant differences were found in the proportion of mentally individuals as identified by the BSI between subjects without special education (55.5%) and those with special education (75%), no such differences were found with the MMS instrument. There were significant differences among individuals of different ethnicities in terms of their identification as per the MMS instrument: 25.9% of African Americans, 43% of Caucasians and 11.7% of Other ethnicities were classified as mentally ill by the

MMS. Similarly, 13.7% of African Americans, 80% of Caucasians and 6.25% of Other ethnicities were classified as mentally ill by the BSI.

T tests were also performed in order to compare age and years of education between subjects identified as mentally or not mentally ill according to the BSI and MMS. Results are presented in Table A11.

As can be gleaned from this table, no significant differences in terms of age or years of education were observed between individuals identified as mentally ill by either the BSI or MMS. These results are consistent with those from the chi-square tests reported previously, in which no relationship among age, education and diagnoses were found.

Table A12 presents the relationships among BSI and MMS diagnoses and type of offenses and number of incarcerations. No significant relationships were found among BSI and MMS diagnoses and type of offenses and number of incarcerations.

Table A13 presents the relationships among BSI and MMS diagnoses and mental health history for the study sample. The results are represented below for males and females. For females the sample size is 20 which are likely too small to demonstrate adequate power. Therefore the chi-square value and p-value is not considered valid.

Overall, these results indicate for the sample study population that:

1. Individuals currently taking psychiatric medications were more likely to be classified as mentally ill by the MMS (68.6%) more than individuals who were not (23.1%). Men currently taking psychiatric medications were more likely to

be classified as mentally ill by the MMS (68.0%) than men with who were not (17.7%). Women were equally likely to be classified as mentally ill by the MMS (70.0%) regardless of whether or not they were currently take psychiatric medications.

2. Individuals with a previous mental health history were more likely to be classified as mentally ill by the MMS (51.3%) than individuals with no history of mental illness (14.3%). Men with a previous mental health history were more likely to be classified as mentally ill by the MMS (43.9%) than individuals with no history of mental health mental illness (13.2%). Women with a previous mental health history were more likely to be classified as mentally ill by the MMS (76.8%) than individuals with no history of mental health diagnosis (33.3%) in this sample. However, considering the low power it is questionable whether this can be generalized to a larger female population.

3. While individuals with a past clinical diagnosis were more likely to be classified as mentally ill by the MMS (58.6%) than individuals with no history of mental health diagnosis (16.6%). Men with a past clinical diagnosis were more likely to be classified as mentally ill by the MMS (54.6%) than individuals with no history of mental health diagnosis (12.1%). Women appeared equally as likely to be classified as mentally ill by the MMS (71.4%) as those with no history of mental health diagnosis (66.7%).

4. Individuals with a current mental health diagnosis were more likely to be classified as mentally ill by the MMS (54.6%) than individuals without a

mental health diagnosis (12.1%). Males with a current clinical diagnosis were more likely to be classified as mentally ill by the MMS (59.0%) than males with no mental health diagnosis (41.0%). Women with a current clinical diagnosis were likely to be classified as mentally ill by the MMS (71.4%) at nearly the same rate as those with no mental health diagnosis (66.7%).

Similar relationships were found for the BSI. Table A14 presents the relationships among BSI and MMS diagnoses and drug abuse history.

Overall, these results indicate that:

1. Individuals with a history of marijuana abuse were more likely to be classified as mentally ill by the MMS (70.5%) than individuals with no history (30.1%). Men with a history of marijuana abuse were more likely to be classified as mentally ill by the MMS (66.7%) more than males with no history (26.9%). Women with a history of marijuana abuse were as likely to be classified as mentally ill by the MMS (75%) than females with no history (66.7%) in this small population.

2. Individuals who abused hallucinogenic drugs were more likely to be classified as mentally ill by the MMS (100%) than individuals with no history of abusing hallucinogens (31.7%). Males who abused hallucinogenic drugs were classified as mentally ill by the MMS (100%) of the time while males with no history of abusing hallucinogens were identified with mental illness by the MMS far less often (13.2%). Women with a history of abusing hallucinogens were classified as mentally ill by the MMS (100.0%) of the time while those with no history of

abusing hallucinogens were classified with mental illness by the MMS (66.7%) of the time. Again, it is strongly recommended that the sample size for women (N=20) be taken into consideration when interpreting these results.

3. Individuals with a history of abusing opioids were more likely to be classified as mentally ill by the MMS (69.2%) than individuals with no previous opioid abuse (31.6%). Males with a history of abusing opioids were more likely to be classified as mentally ill by the MMS (62.5%) than males with no previous opioid abuse (26.5 %). Women with a history of abusing opioids were classified as mentally ill by the MMS (80%) comparable to those with no previous opioid abuse (66.7%) in this sample.

CHAPTER IV

DISCUSSION

<u>Overview</u>

The main purpose of this study was to determine if the Modified Mini Screen (MMS) is valid and reliable in screening for mental illness with prison inmate populations. This study showed validity and reliability evidence that supports the use of the MMS for identifying mood disorders, anxiety disorders, and psychotic disorders in newly admitted inmates during the intake and reception process in prisons. The results of the study are significant because the Modified Mini Screen shows potential as a standard measure in the reception and intake process in prisons.

The core research question addressed was whether the MMS meets acceptable levels of validity when compared to a "gold standard" measure, as established by the Brief Symptom Inventory (BSI; Derogatis, 1983). Initially, before the analyses were conducted, the internal consistency reliability of the 22-item MMS scale was assessed using Cronbach's Alpha. The resultant alpha coefficient was 0.91, indicating that the MMS scale exhibited a high level of internal consistency, and that the measures for the purposes of this study may be considered reliable.

<u>Implications of Results</u>

There is an extensive gap in the literature related to gender and the assessment of mental health in the correctional system. Specifically, most of the literature assessing the prevalence of mental illness focuses on males (Diamond et al., 2001; Teplin, 1990). A need exists for continued research on a mental health screen with both male and female

inmate populations. The tests on the sample data for this study have shown a high level of

internal consistency reliability when the 22-Item MMS scale was assessed using

Cronbach's Alpha indicating considerable reliability. Findings also show concurrent

validity of the MMS with the BSI for age, ethnicity, level of education, history of

substance abuse, and mental health. The concurrent validity of the MMS with the BSI

was better for females than for males for this study sample, an important finding in the

author's view even considering the small sample size of female participants. Future

research is needed to determine the role of gender in screening for mental illness in male

and female prison populations during the intake process.

In a study of 13,816 people receiving mental health services from the

Massachusetts Department of Mental Health from 1991 to 1992, 28% were identified as

having experienced at least one arrest. Results revealed that individuals with severe

mental illness and socio-demographic features similar to offenders in the general

population had a higher likelihood of arrest (Fisher, Roy-Bujnowski, Grudzinskas,

Clayfield, Banks, & Wolff, 2006). The current study has shown similar findings in that

the socio-demographic features, such as age, ethnicity, level of education, history of

substance abuse and mental health, were significantly related to the likelihood of mental

health symptoms from both the MMS and BSI instruments.

Current screening tools that have established some reliability and validity in

screening for mental illness in correctional settings, including the Referral Decision Scale

(Teplin & Swartz, 1989; Rogers et al., 1995) the Correctional Mental Health Screen

(Ford & Trestman, 2005; Ford Trestman, Wiesbrock, & Zhang, 2007) the Brief Jail

Mental Health Screen (Steadman, Scott, Osher, Agnes & Robbins, 2005), have

limitations that the MMS shows potential for improving on.

<u>The Correctional Mental Health Screening (CMHS)</u>

The Correctional Mental Health Screen (CMHS) was validated in a jail

population of detainees for nine diagnostic categories that were statistically significant,

with mental health diagnoses found in 50.7% of female detainees and 49.2% of jail

detainees. In their study, Ford and Trestman (2005) noted that prevalence rates were

assessed as high as or higher than those generally found in psychiatric settings,

specifically, the presence of Post-traumatic Stress Disorder and Personality Disorders

were notable.

The current study on the MMS that screened newly admitted male and female

inmates during the intake and reception process in prisons, may not have answered Ford

and Trestman's (2005) call for further tests needed to determine if the findings are valid

for inmates confined in a prison setting. However, the study findings did show that the

MMS diagnosed mental illness in 87.5% of the females and in 46.9% of the males

correctly. These statistics are comparable with the results found for the CMHS.

Additional research that utilizes a larger female population may provide further support

for the use of the MMS as a mental health screening tool in correctional populations. In

addition future research should address symptoms associated with Axis II disorders as

was done with the CMHS.

<u>Brief Jail Mental Health Screen (BJMHS)</u>

Although the Brief Jail Mental Health Screen BJMHS (Steadman, Scott, Osher, Agnes & Robbins, 2005) was found to be more effective than some of the other correctional mental health screens at identifying serious mental illness in jails, results indicated that the BJMHS failed to identify more than a third of the women with current mental health symptoms, while just less than half of the women who were identified for psychiatric referral did not have a serious mental health diagnosis. Additionally, research on the BJMHS (Steadman et al, 2005) showed that 15% of male detainees with current acute symptoms were discovered to have been missed by the BJMHS, when compared to correctional officer feedback, resulting in false negatives. Finally, the BJMHS focuses on identifying symptoms associated with Axis I mood and psychotic diagnosis but does not address symptoms related to Axis II personality disorders. The findings suggest that additional research is needed with an additional focus on women in order to increase the true positive rate when using this screen with female jail detainees.

The current study assessing the MMS showed concurrent validity in true positive rates with the BSI; however, sensitivity measures of the MMS were better for females than for males for this study sample when compared to the BSI results. Although the sample size of women subjects in the current study was small, it shows promise that the MMS may have strong sensitivity in female inmate populations. While the overall sensitivity of the MMS was somewhat weak, as it only has a 55% chance of correctly identifying males who report mental illness as being mentally ill, findings were similar to those with the BJMHS that correctly classified mental illness in 74% of men and 62% of women (Steadman, Scott, Osher, Agnes & Robbins, 2005) . These findings are similar to

those with the MMS which appeared to be an effective tool at recognizing gender differences and was able to identify mental illness in 70% of females although only identified mental illness in 29% of the male subjects.

<div align="center">National Interview of Mental Health Diagnostic Interview Schedule (NIMHDIS)</div>

After administering the National Interview of Mental Health Diagnostic Interview Schedule (NIMHDIS), designed to separate remitted disorders (lifetime) from disorders with recent symptoms, results of the study by Teplin (1990b) showed that false negative errors (mental illness existed but was not detected) occurred in 62.5% of subjects, while false positive errors (no presence of mental illness but mental illness was detected) accounted for only 4.6 % of subjects. Of those subjects identified as having a severe mental illness, only 37.5% received treatment within a week of their intake. The current study on the MMS established that false negative errors occurred in 45% of the subjects, while false positive errors occurred in only 4% of the subjects. These findings show that the MMS may be as useful, if not better than the NIMHDIS in diagnosing mental illness in prison populations.

<div align="center">Referral Decision Scale (RDS)</div>

Teplin and Swartz (1989) developed a screening tool called the Referral Decision Scale (RDS) that identified schizophrenia, major depression, and bipolar disorder in jail populations. The subscales identifying depression, bi-polar disorder, and schizophrenia showed on average .99 specificity for predicting DIS diagnoses. Later studies (DiCataldo, Grier & Profit, 1995; Veysey, Steadman, Morissey, Johnsen & Beckstead, 1998) found that the use of the RDS resulted in false positives. Rogers, Sewell, Ustad, Reinhardt, and

Edwards (1995) further found, when validating the RDS with the Schedule of Affective

Disorders and Schizophrenia- Change Version (SADS-C) and the Personality Assessment

Inventory (PAI) that the RDS provided only moderate evidence of convergent validity

and did not demonstrate acceptable discriminate validity, due to higher correlations on

RDS subscales. They argued that these results, combined with evidence of the RDS's

poor positive predictive power .19 (Hart et al., 1993) and the RDS's inattention to

suicide and other problematic behavior, indicated that this instrument should only be used

as a gross screen for psychological impairment in forensic settings (Rogers et al.). These

findings suggest that the RDS may not be as viable, for the diagnosis of mental illness in

inmates during the intake process in prisons, as the MMS. The current study showed the

MMS to have concurrent validity with the BSI measure for identifying mood disorders,

anxiety disorders, and psychotic disorders, as established by the BSI. Additionally, the

MMS has an item which addresses suicidal ideation and suggests that anyone who

answers yes to the item be referred for a clinical follow up interview.

When the general issue of implementing mental health screening tools in

correctional populations is studied, although several studies have been conducted with

brief mental health screens in jail settings, there are important differences that must be

noted between jail and prison populations. Thus, the extent to which inferences from jail

research can be applied to prison settings is limited. The results of this study on the MMS

are clinically relevant because prison inmates are inherently different from jail inmates.

They transfer to correctional institutions to serve more extended sentences than those

sentenced to jail. While prison inmates often begin their sentences directly from court

after having been sentenced to a long period of punishment many jail inmates are incarcerated awaiting a hearing on pending charges. They may hold a sense of hope that chares against them will be dismissed or that they will be found not guilty or receive light sentences or even probation. Additionally, jail inmates are generally serving much shorter sentences than those incarcerated in a prison. Prison inmates may begin their prison incarceration after transfer from a jail or probation/parole facility following revocation from community supervision because of rule violations even if they have not committed a new criminal offense. Those inmates entering the prison system following recent sentencing may be at a higher risk for experiencing adjustment related symptoms than jail inmates as they struggle to come to terms with the reality that they will be incarcerated for an extended period of time. It is established that some prison inmates may experience difficulties adjusting to their incarcerated status and then again when reintegrating back into the community when released. This can be especially difficult for men and women who must separate from spouses, children, or experience separation from support systems or a sense of disconnect with the greater society.

Research has indicated that mental illness and suicide in prisons can be significantly reduced through the use of mental health screening during the intake process. There are several risk factors including current symptoms of depression, substance abuse or a history of overuse, acute anxiety, panic, or psychotic symptoms, the inability to implement effective coping skills, loss of social and emotional support systems, and termination of ongoing psychological treatment that when identified quickly can promote further assessment and treatment. There is no question that additional

research that focuses on screening for mental illness in inmates entering the prison system is necessary. The overriding purpose of the current study was to test the utility of the Modified Mini Screen (MMS), a modification of the MINI, which can be administered to inmates in a much briefer period of time and provide necessary mental health information that could lead to further referral.

<div align="center">Limitations</div>

There are a number of limitations to the current study; therefore, caution should be used when interpreting the results. First, the study design limited subject sampling to the prisons intake population rather than the including the entire general population of inmates. Consequently, the sample size was restricted and potentially compromised the statistical power. Additionally, the study population at the facility where the data was gathered was not representative of the Iowa Department of Corrections inmate population as a whole because violent offenders were underrepresented. At midyear in 2005, 61% of state prison inmates with mental health problems had a criminal record with a current or past violent offense while 56% of violent offenders did not show signs of mental health problems (BOJ, 2006a). This is an important consideration because a history of violence may correlate to mental health problems. Therefore the results of the study on the MMS should be used with great caution and should not be generalized to the larger prison population which often includes violent offenders.

Second, the number of female subjects represented in prison populations is substantially lower than that of males as was reflected in the sampling for this study. This is similar to findings in the Bureau of Justice Statistics Special Report (September, 2006)

that found that female inmates had higher rates of mental health problems than male

(55% of males and 73.1% of females) inmates in state prisons and jails. The study

findings demonstrate that the MMS diagnosed mental illness in 87.5% of the females and

in 46.9% of the males suggesting greater sensitivity in the female subjects. Because the

number of female subjects in this sample was small (N=20) additional research using a

larger sample size of female inmates is recommended. The results of the MMS may have

significant findings as female subjects were identified with mental illness by the MMS at

higher rates than males suggesting that mental health problems may be more common

with females.

Third, the results of the study were based predominately on the self reported

assessment of a subject's perception of their own mental illness. Self-reported measures

have the potential for introducing confounds, creating the potential for over-reporting of

symptoms or feigned and malingered symptoms. Fourth, the results of the study were

derived from a relatively small and homogeneous population making it difficult to

generalize to a larger inmate population representative of various racial and ethnic groups

and differing ages. Fifth, the overall rates of mental illness as identified by the MMS

documented false negative errors in 45% of the subjects, and false positive errors in 4%

of the subjects, thereby showing that the MMS has the potential to under identify mental

illness resulting in potentially serious consequences. Finally, much of the current research

assessing mental illness in prison populations focuses on axis I disorders. It has been the

author's experience that axis II disorders also present a significant challenge to mental

health staff in correctional settings. Many individuals who find themselves under

correctional confinement evidence character logical traits consistent with the various Personality Disorders. While often more difficult to treat, symptom presentations associated with Axis II disorders often monopolize staff time, utilize large amounts of institution resources, and may be accompanied by devastating self or other harm behavior and suicide attempts.

<div align="center">Suggestions for Future Research</div>

This study assessed whether the Modified Mini Screen (MMS) is valid and reliable in screening for mental illness with prison inmate populations. It examined the validity and reliability of the MMS for identifying mood disorders, anxiety disorders, and psychotic disorders in newly admitted inmates during the intake and reception process in prisons. It also highlighted the current state of mental illness found in United States correctional institutions.

A number of concerns have transpired indicating a need for future research. First, future research assessing the usefulness of the MMS or another measure for screening mental illness in a prison population should consider a larger sample size thereby increasing the power. Differences in study results may be found with an increased N. Second, female inmate populations have been underrepresented in the research of mental health assessment and screening tools in correctional populations. This study noted significantly higher rates of symptoms of mental illness were reported on the MMS for female subjects. Gender may be an influential factor in the presentation of mental illness in correctional settings. Further research examining gender with respect to mental illness in prisons would be useful. Third, future research should weigh the possibilities of a

design that considers the potential for observational data that could supplement the self-reported data. Studies might consider eliciting collateral reports from correctional staff including correctional officers and nursing staff to gather additional information that could be considered in addition to the self report.

Fourth, additional research should consider a larger sample size of newly admitted inmates entering the correctional system that is also representative of the United States prison population in 2008. Historically, underrepresented racial and ethnic minorities including Black's, Latino's, and American Indians have been incarcerated at much higher rates across multiple age categories than their white counterparts (Pew Public Safety Performance Project [PPSPP], 2008). Additional research should consider whether the factors of race and ethnicity influence the presence of mental illness. Specific demographic factors that contribute to or protect inmates from presenting with or developing symptoms of mental illness while incarcerated should be further evaluated. This should be done with along with additional consideration for any interaction between them. Other factors such as a history of familial mental illness and past exposure to trauma should be considered.

Fifth, while the MMS did not show high rates of false positives in this study that would potentially result in unnecessary clinical follow-up, the rate of false negatives was concerning. Future research should assess factors that may influence the potential for underreporting of mental health symptoms in correctional settings. Inmates who report mental illness may be identified by correctional staff for placement on a special management housing unit, be identified for additional mental health treatment

programming, or viewed by the inmate population as "weak" or perceived as vulnerable. Well meaning interventions at times are perceived by inmates as barriers to their social standing in a correctional environment. Future research should assess factors that may encourage underreporting of mental health symptoms. Finally, it is important to more clearly conceptualize mental illness that may present as a barrier to incarceration. The further evaluation of both Axis I and Axis II disorders is recommended in order for an effective screening tool to be identified. Assessment tools that consider Axis II disorders along with Axis I could then appropriately be refined to more effectively assess and address mental health symptom presentation. It may be important to determine how inmate personality traits or characterlogical disorders along with coping skills impact an inmate's report of mental illness while incarcerated. Identifying a mental health screening tool that is both valid and reliable at identifying both axis I and axis II disorders in inmates entering the prison system would help correctional mental health staff provide necessary treatment throughout an inmate's incarceration.

<div align="center">Conclusion and Recommendation</div>

Each day the number of mentally ill people entering the correctional system continues to grow suggesting that America with limited community options is willing to incarcerate mentally ill people simply because there is no better alternative. Regrettably, in 2008 mental health institutions once constructed to house, support, teach, and nurture those with mental illnesses are no more. The institutionalization of the mentally ill in the 1970's created a surge in the number of mentally ill people being sentenced to long terms in prison's and jails. With increasing prison populations correctional agencies are faced

with the responsibility of not only providing safety to the public but are also being asked to provide medical and mental health treatment to the sick. Correctional institutions are striving to face these challenges within the confines of limited agency resources, institutional policies and procedures that focus on security not health treatment, and negative public attitudes about individuals who are incarcerated. These obstacles are seen as limiting and have the potential to interfere with the successful implementation of appropriate mental health treatment.

In meeting the most basic standards of care for mental health treatment in prisons the American Association of Correctional Psychology (1999) recommends that correctional mental health care establish a process of mental health screening, continued monitoring of mentally ill inmates once a mental illness has been distinguished, active mental health treatment that includes psychopharmacology, individual therapy, or group therapy as appropriate, accurate documentation of treatment services provided, appropriate housing of mentally ill inmates, and an active suicide prevention plan that includes staff training. Correctional mental health care workers are charged with helping underserved and often forgotten population of mentally ill individuals who are also convicted or committing criminal behavior. Many of these staff have made a commitment to this population and to society as a whole to work towards facilitating treatment that will assist offenders to be in a better position when they release from prison than when they came entered. This research on the MMS may lead correctional psychologist one step closer to achieving that goal. The researcher hopes that the results of this study will be helpful to officials at the Iowa Medical and Classification Center.

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APPENDIX A

TABLES

Frequency Distributions for the Study Variables (N=130):

Table A1. Frequency Distribution for Age and Gender

Variable	Frequency	%
Age		
Under 20	15	11.5%
20-29	45	34.6%
30-39	40	30.8%
40-49	25	19.2%
50+	5	3.8%
Gender		
Female	20	15.4%
Male	110	84.6%

Table A2. Frequency Distribution for Ethnicity

Variable	Frequency	%
Ethnicity		
African American	27	20.8%
Caucasian	86	66.2%
Hispanic	8	6.2%
Native American	4	3.1%
Other	3	2.3%

Table A3. Frequency Distribution for Education

Variable	Frequency	%
Education		
Below High School	70	53.8%
High School Graduate	31	23.8%
Some College	29	22.3%
Special Education	40	30.8%

Table A4. Frequency Distribution for Offense Type and Number of Incarcerations

Variable	Frequency	%
Property Offense	57	43.8%
Drug/Alcohol Offense	48	36.9%
Assaultive/Violent Offense	25	19.2%
Escape	3	2.3%
Driving	3	2.3%
Other	11	8.5%
# of Incarcerations		
1	56	43.1%
2	30	23.1%
3	18	13.8%
4	26	20.0%
*Past Crimes**	74	57.8%

* For this variable, total N = 128

Table A5. Frequency Distribution for Mental Health

Variable	Frequency	%
On Psychiatric Meds	35	26.9%
Past MH History	74	56.9%
Past Clinical Diagnosis	58	44.6%
Current Diagnosis	58	44.6%

Table A6. Frequency Distribution for Drug Abuse

Variable	Frequency	%
Alcohol	17	13.1%
Marijuana	10	7.7%
Cocaine	10	7.7%
Hallucinogens	7	5.4%
Opioids	13	10.0%

Cross tabulation Results between the BSI and MMS Variables:

Table A7. Cross tabulation between BSI and MMS Diagnostic (N = 130)

	MMS Negative	MMS Positive	Total
BSI Negative	48	2	50
	36.9%	1.5%	38%
BSI Positive	36	44	80
	27.7%	33.8%	62%
Total	84	46	130
	65%	35%	100%

Sensitivity: 55%
Specificity: 96%

Table A8. Cross tabulation between BSI and MMS Diagnostic for Females (N = 20)

	MMS Negative	MMS Positive	Total
BSI Negative	4	0	4
	20.0%	0.0%	20%
BSI Positive	2	14	16
	10.0%	70.0%	80%
Total	6	14	20
	30%	70%	100%
Sensitivity: 87.5%			
Specificity: 100%			

Table A9. Cross tabulation between BSI and MMS Diagnostic for Males (N = 110)

	MMS Negative	MMS Positive	Total
BSI Negative	44	2	46
	40.0%	1.8%	42%
BSI Positive	34	30	64
	30.9%	27.3%	58%
Total	78	32	110
	71%	29%	100%

Sensitivity: 46.9%
Specificity: 95.6%

Analyses of the Relationships between the variables of the BSI and MMS:

Table A10. Relationship between BSI, MMS and Demographic Characteristics

| | BSI | | MMS | |
	Phi	Chi-Square p value	Phi	Chi-Square p value
Age	0.137	0.649	0.092	0.892
Gender	-0.161	0.065	**-0.308**	<0.001
Education	0.038	0.909	0.057	0.807
Special Education	**0.184**	0.035	0.099	0.258
Ethnicity	**0.376**	<0.001	**0.238**	0.024

*Note: significant relationships are shown in **boldface***

Table A11. Mean Age and Years of Education by BSI/MMS Positive/Negative

	Mean for MMS Neg.	Mean for MMS Pos.	*p* value	Mean for BSI Neg.	Mean for BSI Pos.	*p* value
Age	31.74	31.82	0.962	31.84	31.69	0.935
Education	10.79	11.05	0.855	11.39	11.58	0.606

Note: the p values reported in this table correspond to independent samples t tests between the "Positive" and "Negative" groups for each instrument.

Table A12. Relationship among BSI, MMS, and Type of Offenses and Number of
Incarcerations

| | BSI | | MMS | |
	Phi	Chi-Square p value	Phi	Chi-Square p value
Property Offense	0.125	0.154	0.156	0.074
Alcohol Offense	-0.083	0.343	-0.032	0.708
Assaultive Offense	-0.015	0.860	-0.034	0.693
Other	0.013	0.881	-0.051	0.556
Number of Adult Incarcerations	0.120	0.595	0.111	0.658
Past Crimes	0.061	0.484	-0.033	0.703

Table A13. Relationship between BSI, MMS and Mental Health History

	BSI		MMS	
	Phi	Chi-Square p value	Phi	Chi-Square p value
Currently Taking Psychiatric Medication	**0.408**	<0.001	**0.421**	<0.001
Mental Health History	**0.429**	<0.001	**0.383**	<0.001
Past Diagnosis	**0.423**	<0.001	**0.436**	<0.001
Current Diagnosis	**0.423**	<0.001	**0.436**	<0.001

*Note: significant relationships are shown in **boldface***

Table A14. Relationship between BSI, MMS and Drug Abuse History

	BSI		MMS	
		Chi-Square		Chi-Square
	Phi	p value	Phi	p value
Alcohol	**0.212**	0.015	**0.285**	0.001
Marijuana	**0.168**	0.035	0.148	0.0989
Cocaine	**0.228**	0.009	0.1486	0.098
Hallucinogens	**0.188**	0.031	**0.322**	<0.001
Opioids	**0.263**	0.002	**0.235**	0.007

Note: significant relationships are shown in ***boldface***

Table A15. Descriptive Statistics for the 22-items MMS Scale (N = 120)

Item	Mean	Std Dev
MMS01	0.33	0.47
MMS02	0.39	0.49
MMS03	0.25	0.43
MMS04	0.05	0.22
MMS05	0.25	0.43
MMS06	0.27	0.45
MMS07	0.23	0.42
MMS08	0.31	0.46
MMS09	0.47	0.5
MMS10	0.33	0.47
MMS11	0.18	0.39
MMS12	0.18	0.38
MMS13	0.18	0.38
MMS14	0.41	0.49
MMS15	0.25	0.43
MMS16	0.24	0.43
MMS17	0.1	0.3
MMS18	0.07	0.25
MMS19	0.03	0.18
MMS20	0.16	0.37
MMS21	0.19	0.4
MMS22	0.16	0.37

APPENDIX B

MODIFIED MINI SCREEN (MMS)

***
Modified Mini Screen (MMS)

Patient Name _____ OASAS ID _____

Weeks since admission _____ Interviewer _____

Today's Date _____ Supervisor Initials (optional) _____

SECTION A

1. Have you been consistently depressed or down, most of the day, nearly every day, for the past 2 weeks?	YES	NO
2. In the past 2 weeks, have you been less interested in most things or less able to enjoy the things you used to enjoy most of the time?	YES	NO
3. Have you felt sad, low or depressed most of the time for the last two years?	YES	NO
4. In the past month, did you think that you would be better off dead or wish you were dead?	YES	NO
5. Have you ever had a period of time when you were feeling up, hyper or so full of energy or full of yourself that you got into trouble or that other people thought you were not your usual self? (Do not consider times when you were intoxicated on drugs or alcohol.)	YES	NO
6. Have you ever been so irritable, grouchy or annoyed for several days, that you had arguments, verbal or physical fights, or shouted at people outside your family? Have you or others noticed that you have been more irritable or overreacted, compared to other people, even when you thought you were right to act this way?	YES	NO
PLEASE TOTAL THE NUMBER OF "YES" RESPONSES TO QUESTIONS 1-6		

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SECTION B

7. Note this question is in 2 parts.
a. Have you had one or more occasions when you felt intensely anxious, frightened, uncomfortable or uneasy even when most people would not feel that way?
      YES   NO
b. If yes, did these intense feelings get to be their worst within 10 minutes?
      YES   NO
If the answer to BOTH a and b is YES, code the question YES.
If the answer to either or both a and b is NO, code the question NO
	YES	NO

8. Do you feel anxious or uneasy in places or situations where you might have the panic-like symptoms we just spoke about? Or do you feel anxious or uneasy in situations where help might not be available or escape might be difficult?
 	
Examples include:
   ❑ Being in a crowd
   ❑ Standing in a line
   ❑ Being alone away from home or alone at home
   ❑ Crossing a bridge
   ❑ Traveling in a bus, train or car
	YES	NO

9. Have you worried excessively or been anxious about several things over the past 6 months? If no to Question 9, answer "no" to Question 10 and proceed to Question 11.	YES	NO
10. Are these worries present most days?	YES	NO

11. In the past month, were you afraid or embarrassed when others were watching you, or when you were the focus of attention? Were you afraid of being humiliated?
 	
Examples include:
   ❑ Speaking in public
   ❑ Eating in public or with others
   ❑ Writing while someone watches
   ❑ Being in social situations
	YES	NO

12. In the past month, have you been bothered by thoughts, impulses, or images that you couldn't get rid of that were unwanted, distasteful, inappropriate, intrusive or distressing?
 	
Examples include:
   ❑ Were you afraid that you would act on some impulse that would be really shocking?
   ❑ Did you worry a lot about being dirty, contaminated or having germs?
   ❑ Did you worry a lot about contaminating others, or that you would harm someone even though you didn't want to?
   ❑ Did you have any fears or superstitions that you would be responsible for things going wrong?
   ❑ Were you obsessed with sexual thoughts, images or impulses?
   ❑ Did you hoard or collect lots of things?
   ❑ Did you have religious obsessions?
	YES	NO

SECTION B (CONTINUED)

13. In the past month, did you do something repeatedly without being able to resist doing It? Examples include: ❑ Washing or cleaning excessively ❑ Counting or checking things over and over ❑ Repeating, collecting, or arranging things ❑ Other superstitious rituals	YES	NO
14. Have you ever experienced or witnessed or had to deal with an extremely traumatic event that included actual or threatened death or serious injury to you or someone else? Examples include: ❑ Serious accidents ❑ Sexual or physical assault ❑ Terrorist attack ❑ Being held hostage ❑ Kidnapping ❑ Fire ❑ Discovering a body ❑ Sudden death of someone close to you ❑ War ❑ Natural disaster	YES	NO
15. Have you re-experienced the awful event in a distressing way in the past month? Examples include: ❑ Dreams ❑ Intense recollections ❑ Flashbacks ❑ Physical reactions	YES	NO
PLEASE TOTAL THE NUMBER OF "YES" RESPONSES TO QUESTIONS 7-15		

SECTION C

16. Have you ever believed that people were spying on you, or that someone was plotting against you, or trying to hurt you?	YES	NO
17. Have you ever believed that someone was reading your mind or could hear your thoughts, or that you could actually read someone's mind or hear what another person was thinking?	YES	NO
18. Have you ever believed that someone or some force outside of yourself put thoughts in your mind that were not your own, or made you act in a way that was not your usual self? Or, have you ever felt that you were possessed?	YES	NO
19. Have you ever believed that you were being sent special messages through the TV, radio, or newspaper? Did you believe that someone you did not personally know was particularly interested in you?	YES	NO
20. Have your relatives or friends ever considered any of your beliefs strange or unusual?	YES	NO
21. Have you ever heard things other people couldn't hear, such as voices?	YES	NO
22. Have you ever had visions when you were awake or have you ever seen things other people couldn't see?	YES	NO
PLEASE TOTAL THE NUMBER OF "YES" RESPONSES TO QUESTIONS 16-22	YES	NO

SCORING THE SCREEN

NUMBER OF "YES" RESPONSES FROM SECTION A	
NUMBER OF "YES" RESPONSES FROM SECTION B	
NUMBER OF "YES" RESPONSES FROM SECTION C	
TOTAL NUMBER OF "YES" RESPONSES FROM SECTIONS A, B & C	
YES RESPONSE TO QUESTION #4	
YES RESPONSES TO QUESTIONS #14 AND #15	