MENTAL HEALTH SCREENING IN JAILS

by

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ABSTRACT

More than seven million individuals were admitted to North American jails in 2007, many with a serious mental disorder. Mentally disordered inmates are at an increase risk for self-harm and suicide, victimization and institutional disruption. The large number of mentally disordered inmates and the limited resources available in correctional settings make the proper identification of mentally disordered inmates difficult but critical. Legal and professional standards require jails to screen every inmate for mental health problems immediately upon intake. Despite these requirements, many jails do not systematically screen for mental disorder or employ practices with questionable validity. Recently, researchers have worked to develop and validate mental health screening tools designed specifically for the correctional setting. In this study, the utility of two such measures, the Brief Jail Mental Health Screen (BJMHS) and the Jail Screening Assessment Tool (JSAT) is examined. 1339 inmates in a British Columbia male pretrial centre were screened using both the BJMHS and the JSAT in a random counterbalanced fashion. When screened with the BJMHS, 45.0% of inmates screened positive whereas only 14.3% screened positive with the JSAT. 1 to 3 days after the screen ($M = 1.61$), 106 inmates were administered the Structured Clinical Interview for DSM. The BJMHS and JSAT's overall agreement was 65.0% while their chance corrected-agreement was $k = .244$. Using various subsets of DSM Axis I disorders, 4 definitions of mental disorder were created. The validity of the BJMHS and JSAT were assessed by examining the results of the screen with each of these 4 definitions. The sensitivity and specificity of the BJMHS and JSAT varied by definition of mental disorder. While the BJMHS had better sensitivity across all definitions, the JSAT had better specificity across most definitions. Implications for correctional mental health care are discussed.

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

MENTAL HEALTH SCREENING IN JAILS

It is estimated that more than 7.4 million individuals worldwide are held in pretrial detention every year (Schonteich, 2008). Nowhere is the pretrial detention rate higher than in the Americas where their pretrial rate of 86.9 per 100,000 is nearly twice the global average. In North America, the rate is higher still (137 per 100,000), mostly as a result of the high incarceration rate in the United States (US). In 2007, US jails,[1] which house primarily pretrial detainees, admitted an estimated 13 million persons (Sabol & Minton, 2008). In Canada, more than a quarter of a million individuals were held in pretrial detention in 2007, a value which reflects an increase of 26% over the last 10 years (Babooram, 2008). The large number of individuals entering pretrial detention, the transitory nature of their stay, and the sudden stress of incarceration and dislocation from the community pose special challenges for correctional administrators and health professionals. These challenges are compounded by the large number of mentally ill individuals that figure among jail admissions (Ogloff, 2002; Roesch, 1995; Teplin, 1991). This combination of factors places jail inmates at risk for significant distress and institutional maladjustment (James & Glaze, 2006). The proper identification of those individuals who require mental health services is paramount. As a result, efficient mental health programs must be in place to systematically identify individuals in need of mental

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[1] In the US, the terms *jails* and *prisons* refer to vastly different types of institutions despite the fact that the terms are often used interchangeably. Prisons typically house inmates who have been convicted and sentenced to one or more years in a correctional facility. On the other hand, the majority (approximately 62%) of those in jail, are individuals who are in pretrial detention (either awaiting arraignment or trial) or who have been sentenced to a short period of incarceration (approximately 38%; Sabol & Minton, 2008).

1

health services so that adverse events can be minimized through well-informed management decisions and treatment. Moreover, appropriate identification and treatment plays a critical role in the reduction of the cycle of readmission often found in individuals with mental illness (Haimowitz, 2004; Ogloff, 2002; Soderstrom, 2007).

Prevalence of Mental Disorder in Jails

There is widespread consensus among researchers, administrators and front line staff that the prevalence of mental disorder among those in the criminal justice system is greater than that of the general population. Many have attributed the growing number of individuals with mental disorders in jails and prisons, the "criminalization of the mentally ill," to the deinstitutionalization of mental health care and the criminalization of substance misuse (Teplin, 1983, 1984, 1990b). So high is the prevalence of mental disorder in jails and prisons, that some have referred to them as "the new mental institution" (Arboleda-Florez et al., 1995, p. 123), the "new psychiatric emergency room" (Lev, 1998, p. 72), the "new asylum" (Shenson, Dubber, & Michaels, 1990), "America's new mental health hospitals" (Torrey, 1995), or as an "alternative shelter" for mentally ill individuals who find themselves homeless (Chaiklin, 2001).

There is, however, a lack of consensus with respect to the precise prevalence of mental disorder. This, in part, is because of a lack of consistency with respect to the definition of mental disorder in the prevalence literature (Corrado, Cohen, Hart, & Roesch, 2000b; Hodgins, 1995; Roesch, Ogloff, & Eaves, 1995). In a systematic review of 62 surveys of correctional samples, across 12 western countries, researchers found considerable heterogeneity between studies in how mental disorder was defined (Fazel & Danesh, 2002; see also Andersen, 2004). For example, some studies examined only the

most serious disorders such as schizophrenia, bi-polar disorder and major depression (e.g., Teplin, 1989, 1990a) but many others employed broader definitions including less serious disorders such as dysthymia and anxiety disorders (e.g., Falissard et al., 2006), substance abuse disorders (e.g., Teplin, 1991;) and/or personality disorders (e.g., Gunn, Maden, & Swinton, 1991). Other studies have not utilized disorder based definitions at all, instead focusing merely on the presence of symptoms (Corrado et al., 2000b). An additional difference is that some studies have focused on current disorders (e.g., Gunn et al., 1991) while others have focussed on lifetime diagnoses (e.g., Cote & Hodgins, 1990). Others have examined history of psychiatric hospitalizations (e.g., Ditton, 1999; Guy, Platt, Zwerling, & Bullcok, 1985) or psychotropic medications (e.g., Fruehwald, Matschnig, Koenig, Bauer, & Frottier, 2004; James & Glaze, 2006) as a proxy for mental illness.

Another factor which greatly impacts the resulting prevalence of mental disorders in a given study is the sampling technique employed. For example, many early studies examined the prevalence of mental disorder in samples of inmates who were referred for psychiatric evaluation (e.g., Nielson, 1979; Petrich, 1976; Piotrowski, Losacco, & Guze, 1976). These samples were not representative of the general correctional population and likely resulted in overestimates of the prevalence. In other early studies, samples were sometimes restricted by eliminating those with specific charges, such as felonies or drug charges, also limiting the generalizability of results (e.g., Schuckit, Herrman, & Schuckit, 1977). In addition, the specific criminal justice setting impacts the prevalence rate, with evidence suggesting that jails have a higher prevalence rate than prisons (James & Glaze, 2006; Teplin, 1991). Moreover, prevalence rates in samples of females have yielded

higher estimates than samples of males (e.g., Teplin, 1994; but see Arboleda-Florez & Holley, 1989).

A further consideration when examining prevalence across jurisdictions, both within and between countries, is that the true prevalence may differ markedly in different sites as a result of the availability of health care resources and the differing attitudes, practices and policies of law enforcement agencies and legal institutions (Corrado, Cohen, Hart, & Roesch, 2000a; Drewett & Shepperdson, 1995; Harris & Rice, 1997). However, despite arguably substantial differences in health and criminal justice policies in Canada and the US, Corrado and his colleagues (2000a) found similar rates of serious mental disorder across Canadian and US jails and prisons. Nonetheless, even within the same metropolitan centres, rates in different regions may reflect the varying characteristics of the neighbourhoods. For example, researchers in the metropolitan area of Vancouver, British Columbia, Canada found vastly different prevalence rates for substance misuse across two studies, differences largely attributable to the characteristics of the jails' catchment areas (Ogloff, 1996; Roesch, 1995).

Despite methodological and conceptual challenges, sufficient research exists to provide estimates of the prevalence of mental disorders in various correctional settings. The most often cited studies in the context of *jail* prevalence are those conducted by Teplin in the early 1990s (Teplin, 1990a, 1990b, 1991, 1994; Teplin & Voit, 1996). In her review of jail studies, Teplin found that among jail detainees, the estimated prevalence of *any* mental disorder ranged from 16% to 67% and the prevalence of *severe* mental disorder (defined largely as schizophrenia, bipolar disorder and major depression)

ranged from 5% to 12% (Teplin, 1991). Recent surveys and reviews have reported similar estimates (e.g., Andersen, 2004; James & Glaze, 2006; Ogloff, 2002).

These prevalence rates should not be taken to suggest that most inmates are healthy (Ogloff, 1996). To the contrary, most inmates have substantial mental health needs, particularly with respect to substance use disorders (Abram, Teplin, & McClelland, 2003; Lamb & Weinberg, 1998; Roesch, 1995).

In contrast, recent evidence suggests that the one-year prevalence of any mental disorder, defined as any Axis I disorder, in the general US population to be approximately 25% while the one-year prevalence of serious mental disorder to be in the region of 5% (Kessler, Chiu, Demler, Walters, 2005). Results are similar in Canada (Health Canada, 2002) and Britain (The Office for National Statistics, 2001)

In summary, while methodological differences between studies have resulted in different estimates of the prevalence of mental disorder in jails, adequate evidence exists to suggest that a disproportionate number of mentally disordered individuals find themselves incarcerated and that the rates of mental disorder in jails far exceed those found in the general population (Hodgins, 1995; Ogloff, 2002).

Impact of Mental Illness

The high prevalence of mental disorders in jails comes at a substantial cost, not only at a fiscal level, but also on a humanitarian basis for both the inmates themselves and for correctional staff. Mentally disordered offenders are perceived by jail staff as the most disruptive type of inmates (Kropp, Cox, Roesch, & Eaves, 1989; Ruddell, 2006). In addition, they are at an increased risk for suicide and self-harm, victimization, and

5

institutional maladjustments (James & Glaze, 2006; Nicholls, Roesch, Olley, Ogloff, & Hemphill, 2005; Ogloff, 2002). These adverse events impact not only individuals entering the criminal justice system with mental health difficulties but also those who develop mental health problems during (and perhaps, as a result) of their stay (Andersen, 2004).

Suicide and Self-Harm

Until recently, suicide was the leading cause of death in US jails, accounting for 56% of deaths in 1983 with a rate of 129 per 100,000 inmates (Mumola, 2005). Jail suicides have declined steadily since 1983 and now represent approximately 32% of jail deaths with a rate of 47 per 100,000 inmates. While it is no longer the leading cause of death, it remains the leading cause of *preventable* death (Blasko, Jeglic, & Malkin, 2008; Camilleri & McArthur, 2008; Hayes, 1997, 1999). Despite the recent decline, the jail suicide rate continues to be much higher than the corresponding rate in the community, with a rate approximately nine times higher than in the general population (Harrison & Rogers, 2007; Hayes & Rowan, 1988; Ivanoff, Jang, & Smith, 1996; O'Leary, 1989). Not only is the suicide rate higher in jails than in the community, evidence shows that the risk of suicide is also higher in jails than in prisons (Magaletta, Patry, Dietz, & Ax, 2007; Mumola, 2005). For example, recent US data suggest that the suicide rate in jails is nearly three times that of prisons (Metzner, Cohen, Grossman, & Wettstein, 1998; Mumola, 2005). Similarly, in England and Wales, while pretrial detainees represent only 19% of the total correctional population, 38% of correctional suicides are committed by them (Magaletta et al., 2007).

Factors that are believed to contribute to the high rate of suicides in jail settings is the high rate of withdrawal from alcohol and/or drugs that occurs upon admission, the traumatic effect that criminal conviction/incarceration can have and the complexities of identifying suicide risk in a largely transient population (Goss, Peterson, Smith, Kalb, & Brodey, 2002; Hayes, 2005; Hayes & Rowan, 1988). Moreover, a disproportionate number of those who are incarcerated have characteristics that make them vulnerable to suicide including a history of traumatic life events (Blaauw, Arensmann, Kraaij, Winkel, & Bout, 2002), poor coping skills (Bonner 1992; Toch, 1992), and mental disorders (Bonner, 2000; Holley, Arboleda-Florez, & Love, 1995; Harrison & Rogers, 2007).

Given that many studies examining community samples have found that individuals with mental illness are at an increased risk of suicide (Harris & Barraclough, 1997; Lesage, Boyer, Grunber, & Vanier, 1994), it is perhaps not surprising that this finding is replicated in incarcerated samples (Bonner, 2000; LeBrun, 1990). For example, when remanded inmates were asked about lifetime suicide attempts,[2] 75% of those who had attempted suicide met diagnostic criteria for a mental illness (Holley et al., 1995). This finding is also replicated when examining suicide attempts carried out while incarcerated. That is, when compared with inmates in the general jail population, mentally ill individuals are at an increased risk of attempting suicide (Harrison & Rogers, 2007). For example, Goss and his colleagues (2002) examined the characteristics of suicide attempts in a large urban jail system and found that the prevalence of mental

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[2] There is considerable discussion and debate in the literature with respect to the operational definitions of various self-injurious behaviours such as "self-harm" and "suicide attempt" and the importance of differentiating between them (Lohner & Konrad, 2007). While I recognize the importance of these conceptual issues in general, such refined distinctions are not only conceptually and empirically difficult, they are not necessary for the purposes of this discussion. That is to say, detainees who are at an increase risk of "suicide attempt" and/or "self-harm" should come to the attention of mental health staff irrespective of which of the two categories they fit within (Camilleri & McArthur, 2008.)

illness among inmates who attempted suicide was 77%, a percentage much higher than the corresponding prevalence of mental illness in the general jail population (15%). Similarly, in a case-control study of completed suicides in 29 Austrian correctional institutions, pretrial inmates who were undergoing psychopharmacological treatment were at an increased risk for suicide (Fruehwald, Matschnig, Koenig, Bauer, & Frottier, 2004). In addition, certain mental disorders are associated with higher rates of suicide, including schizophrenia, affective disorders and substance use disorders (Baxter & Appleby, 1999; Sherman & Morschauser, 1989)

Not only do inmates with mental illness attempt suicide more often, it appears that they may do so with more lethal means (Magaletta et al., 2007). In an examination of suicide lethality, Magaletta and his colleagues (2008) found that increases in suicide attempt lethality were associated with Diagnostic and Statistical Manual of Mental Disorders (DSM) Axis II diagnoses in a sample of prison inmates. While Axis I diagnoses were not statistically significantly related to suicide lethality, results were in the expected direction and did approach significance ($p = .081$). Interestingly, different results were found in a study comparing three groups of male sentenced prisoners. In this study, Daigle (2004) found that suicide attempters had more severe psychopathology than both suicide completers and case-controls. Differences between the results of these two studies may be explained by differences in operational definitions of suicide attempts (see Footnote 1) and/or by differences in operational definitions of psychopathology (DSM vs. Minnesota Multiphasic Personality Inventory). To my knowledge, no studies have systematically investigated the relationship between lethality and mental illness in a sample of *jail* detainees.

Interestingly, in an examination of all reported suicides in jails across the US, results suggested that the suicide rate differs remarkably across individual jails (Mumola, 2005). For example, the suicide rate in the 50 largest jails (57 per 100,000 inmates) was nearly half that of other jails (29 per 100,000). Even within the 50 largest jails there was substantial variability. While 8 of the top 50 jails reported no suicides, others reported suicide rates of over 80 per 100, 000 inmates. As some scholars have suggested, the variability in rates across settings may very well be due to different practices and policies with respect to identifying suicidal inmates and implementing prevention and intervention plans (Tripodi & Bender, 2006). The risk for suicide is greatest in the 24 to 48 hours following admission to detention (Hayes, 1995; Frottier et al., 2002) and perhaps even higher in the first three hours (Hayes & Rowan, 1988). Not surprisingly, early identification of those who are at high risk of suicide appears to be an important factor in reducing inmate suicides (Hayes, 1995), suggesting that individuals at high risk should be identified as soon as possible (Daigle et al., 2007; Zapf, 2006).

Victimization

Not only are mentally disordered individuals at risk for self-directed violence, they can also be the target of other's aggression (Hiday, Swanson, Swartz, Borum, & Wagner, 2001). Depending on the type of violence, individuals with serious mental illness living in the community are at an increase risk for victimization with a prevalence rate 6 to 23 times greater than among the general population (Teplin, McClelland, Abram, & Weiner, 2005). While very few studies have examined the prevalence of victimization in mentally ill incarcerated inmates historically (see Cooley, 1992 for an exception), recent evidence suggests that mentally disordered offenders are at an

increased risk for victimization, including bullying (Blaauw, Winkel, & Kerkhof, 2001).

In one study, researchers examined the prevalence of sexual victimization in prison

inmates with a self-reported mental disorder (Wolff, Blitz, Shi, Siegel, & Bachman,

2007). Researchers found that inmates with a self-reported mental disorder had a rate of

sexual victimization more than twice as high as those without. Similarly, Blitz, Wolff,

and Shi (2008) found that prison inmates with a self-reported mental disorder had a rate

of physical victimization 1.6 times higher for inmate-on-inmate violence and 1.2 higher

for staff-on-inmate violence than individuals with no self-reported mental disorder. Jail

studies have found similar results. For example, in a survey of the mental health problems

of jail inmates, 9% of jail inmates with a self-reported mental health problem reported

being injured in a fight since admission, compared with only 3% of those without a self-

reported mental health problem (James & Glaze, 2006). The increased visibility of

mentally disordered individuals in jails and prisons, with behaviours that may single them

out, be irritating or otherwise unusual, may partly be responsible for the increase in risk

of victimization (Ogloff, Roesch, & Hart, 1994). Additionally, mentally disordered

inmates may be less likely to be able to defend themselves (Kupers, 1999). Proper

placement of individuals with mental disorders, within specialized units for example,

may help reduce victimization (Nicholls et al., 2005).

Institutional Misconduct and Disruption

Mentally disordered inmates can also be the perpetrators of institutional

disruptions (Ruddell, 2006). There is no doubt a tension between a correctional

institution's emphasis on institutional security and mental health considerations.

Managing the needs of mentally disordered inmates within that framework can prove

difficult (Fellner, 2006). For individuals with mental disorders, periods of high

disciplinary involvement often overlap with symptomatic behaviour (Toch & Adams,

2002). Evidence suggests that inmates with mental health problems may exhibit more

serious and more numerous adjustment problems during incarceration than unimpaired

inmates including being more likely to refuse to leave their cells, to set fires or to engage

in self-harm behaviours (McCorkle, 1995; Toch & Adams, 1986; Toch & Adams, 1989).

Similarly, research suggests that individuals with mental illness are more likely to receive

tickets for disobeying a lawful order, refusing to work, sexual misconduct, threats and

verbal abuse (HRW, 2003). More recently, James and Glaze (2006) found that mentally

disordered jail inmates were twice as likely to have been charged with facility rule

violations.

Institutional infractions and maladjustment may often be dealt with severely

without consideration for underlying mental health problems. A federal court judge made

the following findings with respect to California prisons in *Coleman v. Wilson* (1995):

> Mentally ill inmates who act out are typically treated with punitive measures
> without regard to their mental status... There is substantial evidence in the record
> of seriously mentally ill inmates being treated with punitive measures by the
> custody staff to control the inmates' behavior without regard to the cause of the
> behavior, the efficacy of such measures or the impact of those measures on the
> inmates' mental illnesses. (citations omitted; p.1320)

Fellner (2006) in his legal review of mental illness and prison rules, examined a

series of legal cases where behaviours suggestive of mental health difficulties (e.g., self-

harm) were used as evidence of rule violations or illegal behaviour. For example, he

reported on a case where an act of self-harm/mutilation was considered the "destruction

of state property" (p. 397), the prisoner's body being the property in question. Similarly,

fashioning bed sheets into a rope for the purpose of hanging oneself was considered misusing state property (p. 397).

Correctional Staff Stress

In a recent survey of correctional administrators across 134 US jails, correctional staff not only reported that mentally disordered offenders were the most likely to be disruptive (Ruddell, 2006) but also reported that they were the most likely to assault staff. As such, it is perhaps not surprising that mentally ill inmates contribute to correctional staff stress (Kropp et al., 1989; Lavoie, Roesch, & Connolly, 2006). In a survey examining the seriousness of various problems within their institutions, jail managers and social service providers reported that inmates with mental health issues was one of the most serious problems, second only to overcrowding (Gibbs, 1983). In addition, correctional officers appear to perceive mentally disordered inmates less favourably, as more unpredictable and more irrational than other inmates (Kropp et al., 1989; Lavoie et al., 2006). Moreover, many correctional officers do not feel adequately trained to deal with mentally disordered offenders (Kropp et al., 1989; Lavoie et al., 2006) which contributes to work stress (Boyd & Malm, 2002).

Disruptive prison behaviour including self-harm, victimization and rule violations may help explain why individuals with mental health difficulties are more likely to serve their maximum sentence (Toch & Adams, 1989, 2002). Appropriate identification, placement and treatment of mentally disordered inmates may help reduce suicide/self-harm, victimization and institutional infractions, reduce the draconian nature of their consequences and lead to less time in prison.

Cycle of Admissions

Left untreated, mental illnesses can contribute to a cycle of readmission to the criminal justice system (Ogloff, 2002; Swartz, Swanson, Hiday, & Borum, 1998). This appears to be especially so for offenders who suffer from both a substance abuse disorder and another comorbid mental disorder (Abram & Teplin, 1991; Birmingham, 1999, Draine, Blank, Kottsieper, & Solomon, 2005; Haimowitz, 2004, McNiel, 2005).

As a result of the link between mental illness and criminal behaviour, many jurisdictions have created diversion programs and strategies to divert those with mental disorders away from the criminal justice and into mental health treatment (Steadman, Cocozza, & Veysey, 1999). Examples of diversion strategies include specialized mental health courts and drug treatment courts (Schafer, 2003; Watson, Hanrahan, Luchins, & Lurigio, 2001). While it may be ideal to divert mentally ill offenders from the criminal justice system prior to incarceration, some inmates are not identified as mentally ill prior to the arrest and booking process. As a result some diversion programs are created to divert mentally ill individuals who find themselves in pretrial detention (Schafer, 2003).The proper identification of those who suffer from mental illness is critical to the diversion process. Only once identified as mentally ill can an inmate benefit from such a program. While special purpose diversion programs are a relatively recent phenomenon, early evidence suggests that well-coordinated and well-integrated programs are successful in reducing the cycle of recidivism (Soderstrom, 2007).

For those inmates who are not diverted from the criminal justice system, mental health services provided in jail coupled with intensive case management linking the

inmate with community mental health services once released into the community can help reduce recidivism (Dvoskin & Steadman, 1994).

Identification of Mentally Disordered Inmates

Identifying inmates who suffer from mental illness is a primary concern for both jail administrators and mental health staff. In fact, it is considered by many correctional mental health professionals the most important aspect of their work (Boothby & Clements, 2000). Even so, in most correctional settings, it is not feasible to conduct a comprehensive mental health assessment of all of those who come into contact with them. The time and cost to assess inmates' mental health status makes the use of most assessment tools during the intake process untenable. That is, most mental health assessment tools are too costly and too lengthy to be administered to every inmate upon admission. Given the elevated risk for suicide and victimization, it is imperative that the assessment of inmates take place at admission. The process of identifying individuals who require mental health services is therefore best divided into a two-step process. In the first step, systematic mental health screening is carried out on an exhaustive basis. That is, with every new admission. For those who screen negative, no other steps are taken. For those who screen positive, a more comprehensive mental health assessment is completed in the second step. Management, placement and treatment recommendations are generally made on the basis of the results of the second step. However, in some situations, particularly in the case where gaps of time exist between the first and second step, management and placement decisions may be put into place as a result of the first step. This two-step process is similar to many public health screening programs (e.g., breast cancer screening).

The most compelling reason to identify inmates who suffer from mental disorders is to help inform management decisions and enable expedient treatment. Treatment efforts can not only prevent potential mental health deterioration and assist inmates in adjusting to the institution but may also reduce the cycle of admission to the criminal justice system. In short, the identification of inmates who suffer from mental disorders can minimize the negative impacts discussed in the preceding section. Nonetheless, there are a number of other important reasons to identify mentally disorders offenders, including ethical and legal obligations.

Legal and Professional Standards

The provision of mental health services in jails and prisons is a relatively new phenomenon (Roesch, Ogloff, Zapf, Hart, & Otto, 1998; Steadman, McCarty, & Morrissey, 1989). Many of the advancements and reforms in correctional mental health have come as a result of litigation (Welch & Gunther, 1997). In the US, two constitutional rights have important implications for the provision of mental health care in correctional facilities. The Eighth Amendment prohibits cruel and unusual punishment while the Fourteenth Amendment's Due Process clause, relevant for pretrial inmates, prohibits detainees from being punished. In *Estelle v. Gamble* (1976) the US Supreme Court clarified that lack of medical care becomes cruel and unusual punishment when it involves the "unnecessary and wanton infliction of pain" and that "unnecessary and wanton infliction of pain" occurs when officials show "deliberate indifference" to the serious medical needs of prisoners. One year later, the Federal Appeals Court in *Bowring v. Godwin* (1977) extended the principles outlined in *Estelle* to serious mental illness and/or serious mental health needs. In *Ruiz v. Estelle* (1980) the Federal Court clarified

15

the obligations under the Eighth Amendment to require the systematic screening of inmates for suicide and mental health problems .

While the US case law is clear that adequate mental health care must be provided to inmates and that inmates should be screened for mental disorders, it provides no clear rules with respect to what constitutes adequate mental health care or mental health screening. In Canada, the *Canadian Charter of Rights and Freedoms* contains protections that are similar in scope to the United States' Eighth and Fourteenth Amendment but no case law has examined their application to correctional mental health . While specific statutory provisions exist in Canada with respect to the necessary care that should be provided to federal prisoners, no similar statutes exist with respect to provincial jail detainees (Ogloff, 2002).[3] Nonetheless, guidance is provided in the form of standards created by various professional agencies such as the American Psychiatric Association (1989), the American Association for Correctional Psychology (2000) and the National Commission on Correctional Health Care (NCCHC; 2008).

The American Psychiatric Association's Task Force on Psychiatric Services in Jails and Prisons (1989) has outlined four core components of essential psychiatric services: (1) mental health screening and referral; (2) mental health assessment and evaluation; (3) mental health treatment and (4) discharge and pre-release planning. The Task Force made a number of important recommendation related to mental health screening. First, they recommended that *all* incoming inmates be screened for mental

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[3] In Canada, individuals who are sentenced to prison for 2 years or more are under the jurisdiction of the federal government and are governed by the *Corrections and Conditional Release Act* (1992) which includes provisions with respect to medical and mental health care. No similar statute exists for pretrial detainees or inmates serving sentences of 2 years less one day, these inmates falling under the authority of the provincial government.

health needs *immediately* upon admission. Second, that mental health screening consist of both *structured inquiry* and *observations* using *standardized forms*. With respect to the structured inquiry, the Task Force recommended that inmates be asked questions with respect to their mental health and suicide history, history of psychiatric hospitalizations and treatment including psychotropic medications and, current mental health symptomatology and medications. Third, that policies and procedures be put in place specifying the actions required as a result of a positive screen. Interestingly, the Task Force saw the psychiatrist's role as limited with respect to the direct provision of screening services, suggesting that mental health screening be performed by trained booking officers or intake health care staff.

The American Association of Correctional Psychology (2000; now the International Association for Correctional and Forensic Psychology) has formulated its own standards for psychologists working within correctional settings. The current standards (i.e., the 1999 Revised Standards) were created to augment the American Psychological Association's ethical and practice standards and apply them to the correctional setting. They are similar in many respects to those of the American Psychiatric Association's Task Force discussed above. With respect to screening and evaluation, the standards dictate that screening be performed on all inmates upon admission and that this screening take place before inmates are placed in housing units. Furthermore, the standards state that screening should include an inquiry into past and present mental health difficulties including history of suicidal ideation and attempts, psychotropic medications and psychiatric hospitalizations. Moreover, it should examine current mental health status including behavioural observations, current stressors, current

level of functioning and psychotropic medications. The standards do not require psychologist to perform the screening, suggesting that trained correctional staff are appropriate, but the standards do insist that the screening be supervised by a psychologist.

The National Commission on Correctional Health Care (NCCHC)'s recommendations with respect to mental health screening are again, similar (NCCHC, 2008). NCCHC is a non-profit organization which manages a voluntary accreditation program that allows jails to undergo external peer review of their mental health services. Jails that meet NCCHC's minimum standards are accredited by the organization. NCCHC's *Standards for Mental Health Services in Correctional Facilities* (2008) require all newly admitted inmates to be screened for mental health problems immediately upon arrival. They further require that the screening be documented in the inmates health file and that inmates with mental health needs be adequately followed-up.

While legal and professional standards mandate mental health screening in correctional settings, the high number of inmates admitted to some jails and the limited resources available for health care can make this a challenge (McLearen & Ryba, 2003). Evidence to date suggests that there is a great deal of variability with respect to screening practices across jurisdictions.

Current Screening Practices

There have been several studies examining the degree to which jails have adopted mental health screening programs. In an early national survey of jail mental health services, researchers found that 70% of jails provided some type of mental health screening (Steadman et al., 1989). Almost 10 years later, a second survey of American

jails found that while more jails engaged in some form of mental health screening (83%), a minority did not (Veysey, Steadman, Morrissey & Johnson, 1997). However, more recent surveys suggest that a greater number of jails screen for mental health at reception. For example, Borum and Rand (2000) surveyed jails in Florida's 67 counties and found that 93% of jails employed some type of mental health screening. Screening practices did however, appear to differ by jail size. While all small and large jails had screening programs, only 79% of medium jails had intake screening. Unfortunately, little research exists examining the degree to which jails in other countries utilize mental health screening at intake.

While the evidence of the increased rate of mental health screening at admission in the US is promising, an important consideration is the consistency of screening practices (i.e., *systematic* screening of *all* inmates) and the validity of the screen. Steadman and his colleagues (1989), while they did not methodically assess the quality of screening practices in their study, did comment on the variability of the screenings. More specifically, they reported that screening varied from only one or two questions regarding mental health or previous treatment through to structured, detailed mental health evaluations. In fact, it appears that the use of perfunctory questioning may be the predominant practice in some regions. For example, in a survey of Minnesota jails only 15% of correctional staff stated that their institution conducted a mental health screen that did not consist merely of booking questions relating to 1) medications, 2) past suicide attempts, and/or 3) prior hospitalizations (NAMI, 2006). Similar variability with respect to the screening practices has been noted in Australia (Ogloff, Davis, Rivers, & Ross, 2007).

In part as a result of these findings, many scholars have recently called into question the validity of current screening practices in various countries (Gavin, Parsons, & Grubin, 2003 (England and Wales); Ogloff, 1996 (Canada); Ogloff, Davis, Rivers, & Ross, 2007 (Australia); Trestman, Ford, Zhang, & Weisbrock, 2007 (United States)). In one of the first studies examining the detection of mental disorder upon admission to jail, Teplin (1990b) found that only 32.5% of inmates who met criteria for a major mental disorder were identified and treated within one week of intake. In particular, only 32.5% of the inmates who had a psychotic disorder or a severe affective disorder were referred by the screening program and only 7% of the depressed inmates. The screen was more successful at identifying schizophrenic inmates with an identification rate of 45%. In a more recent American study, Trestman and his colleagues found that the existing intake screen performed better but nonetheless missed many inmates with current DSM Axis I disorders including some individuals with psychotic illnesses (Trestman et al., 2007). In Great Britain, one standardized screening tool commonly used in practice failed to identify 75% of inmates with mental disorders (Birmingham, Mason, & Grubin, 1996). Of those judged to be in urgent need of intervention, only 34% were identified by the screen.

It appears that correctional staff also believe that mental health screening practices could be improved. In a survey of correctional mental health personnel, Ruddell (2006) found that only 51.5% believed their current screening practices to be "very effective" at identifying mentally disordered inmates. Others found it to be "somewhat effective" (44.7%) or "not effective" (1.5%), suggesting that there is some room for improvement.

Teplin and Swartz (1989) suggested the following difficulties with respect to existing tools used to identify those who suffer from mental illness: (a) long administration times; (b) lack of trained staff; (3) self-administered tools with high reading levels and (4) lack of established validity. As a potential solution to these problems, they developed the Referral Decision Scale. Other researchers have since followed suit and have undertaken the difficult task of designing and validating specialized tools developed specifically for the jail setting that minimizes administration time, requires only minimal training and are administered orally (e.g., Ford, Trestman, Wiesbrock, & Zhang, 2007; Nicholls et al., 2005; Steadman , Scott, Osher, Agnese, & Robbins, 2005).

Specialized Screening Instruments

Referral Decision Scale

The Referral Decision Scale (RDS; Teplin & Swartz, 1989) is a brief structured screening interview designed specifically for use in a correctional setting. It is derived from the Diagnostic Interview Schedule (DIS, Robins, Helzer, Croughan, & Ratcliff, 1981). It consists of 14 items in 3 domains: Schizophrenia, Bipolar Disorder and Major Depression. It was developed using a discriminant analysis of the DIS to find which items best discriminated between inmates with and without these specific severe mental disorders in a sample of 728 inmates. Most questions pertain to symptoms of major mental disorder.

In their original study, Teplin and Swartz (1989) examined the validity of the RDS by comparing the results of the DIS with the results of the RDS in a sample of 1,149

inmates. To be clear, validating the RDS involved comparing DIS diagnoses with diagnoses generated by the subset of items that make up the RDS, in the *same* sample of inmates. Results suggested adequate sensitivity (.791) and specificity (.987). While this provided early evidence that the RDS might prove useful as a screening tool, further replication was needed by studies where the RDS was administered separately from the DIS.

To further examine the validity of the RDS, Hart and his colleagues (Hart, Roesch, Corrado, & Cox, 1993) administered the RDS to a sample of 790 males admitted to an urban pretrial facility. In order to examine concurrent validity, participants were also administered the Brief Psychiatric Rating Scale (BPRS; (Overall & Gorham, 1962) and the Diagnostic Profile (DP; Hart & Hemphill, 1989). Based on cut-off scores for these three measures, inmates were classified as "cases" (probable mental disorder) or "non-cases" (not probably mentally disordered). A stratified random sample of 108 cases and 84 non-cases were then subsequently administered the Diagnostic Interview Schedule to assess the RDS' predictive validity

When examining the RDS' concurrent validity, the researchers found that the RDS consistently over-predicted "cases" relative to the BPRS and the BP. Similar results were found when examining the RDS' predictive validity as measured by the DIS. That is, the RDS consistently over-predicted "cases" as compared to the DIS and therefore resulted in an unacceptable number of false positives. As a result, the researchers suggested modifying the cut-off scores on the Depression subscale of the RDS. This modification yielded a more acceptable number of false positives without adversely impacting the number of false negatives.

In another study examining the properties of the RDS as a screening instrument, Rogers and his colleagues (Rogers, Sewell, Ustad, Reinhardt, & Edwards, 1995) examined the discriminant and convergent validity of the RDS by comparing it to the Schedule of Affective Disorders and Schizophrenia – Change Version (Spitzer & Endicott, 1978) and the Personality Assessment Inventory (Morey, 1991) in a sample of 108 mail detainees. The researchers found that the RDS was sufficient as a global screening measure but that the high intercorrelations between the three scales limited its utility and lowered its discriminative validity. That is, the tool had limited utility for screening for specific disorders. However, as Osher (2006) points out, the purpose of a screening tool is precisely to make decisions at the global level rather than at the individual disorders level. Moreover, as Brown (1996) comments, comorbid disorders in the sample may have contributed to the scale intercorrelations.

The instruments reliance on the presence of lifetime, rather than current symptoms was also criticized (Veysey, Steadman, Morrisey, Johnson, & Beckstead, 1998). As a results of these limitations, the RDS has not been widely adopted as a screening tool. It was however, revived in 2005 when Steadman and his colleagues modified and revised the RDS to create the Brief Jail Mental Health Screen (BJMHS; Steadman et al., 2005).

Brief Jail Mental Health Screen

The BJMHS is both a revision and reconceptualization of the RDS. Eight of the 14 RDS items were reworded and new referral decision rules were employed. The BJMHS screens for *major* mental disorders. A positive screen suggests that the individual endorses recent or acute symptoms associated with schizophrenia, bipolar disorder and

major depression or psychiatric treatment. A "yes" to 2 of the first 6 questions (current symptoms) or to 1 of either of the last 2 questions (lifetime psychiatric hospitalization or current psychotropic medications) results in a referral for "immediate attention".

In the original validation study, the BJMHS was administered to 10, 330 inmates at the time of intake to one of four large metropolitan jails. A subset of these inmates ($n =$ 357) were administered the Structure Clinical Interview for DSM-IV (SCID). Using the actuarial decision rules specified above, 11.6% of inmates were referred. Interestingly, twice as many women (22.6%) were referred as men (9.9%). When compared to current SCID diagnoses of serious mental disorders (major depressive disorder, major depressive disorder not otherwise specified, bipolar disorders, schizoaffective disorder, schizophreniform, schizophrenia, brief psychotic disorder, delusional disorder and psychotic disorder not otherwise specified) the BJMHS correctly classified 73.5% of the males with a sensitivity of .655 and a specificity of .765. There were 14.6% false negatives. The results were not as favourable for women, with 61.6% of women being correctly classified, a sensitivity of .459, specificity of .729 and a false negative rate of 34.7%. The authors concluded that the BJMHS was a valid screen for males but had limitations with female inmates.

In an attempt to improve the validity of BJMHS's with respect to female inmates, Steadman and his colleagues revalidated the screen in an effort to decrease the number of false negatives found in the female sample (Steadman & Clark, 2007; Steadman, Robbins, Islam, & Osher, 2007). Examining the false negatives from their original validation study, the researchers found that a number of the missed cases (both males and females) were individuals who were subsequently diagnosed with major depressive

disorder on the SCID. As a result, three depression items were added to the screening instrument. In addition, the researchers felt that the original BJMHS may have performed poorly with females because the instrument did not adequately assess the anxiety symptoms often associated with posttraumatic stress disorder (PTSD), a disorder more frequently found in female inmates. The revised instrument, the BJMHS-R, therefore comprised 12 items with referral rules similar to the original instrument. That is, a "yes" to two of the first 10 questions (original items 1 - 6 plus 4 new items) or a "yes" to 1 of either of the last two questions (original 7 or 8) led to a referral.

The new instrument was administered to a sample of 10,562 male and female inmates. As might be expected with the new referral rules, the referral rates of both males and females increased considerably from an overall referral rate of 11% in the original study to a referral rate of 22%. Female inmates were twice as likely to be referred as male inmates (18% of males and 41% of females). Interestingly, this gender difference was partially explained by another gender difference, the differential referral rates of female and male screeners. Female screeners were twice as likely to refer inmates as male screeners. Since many of the female inmates had been screened by female screeners, researchers found that the gender difference in screeners partially explained the gender difference in inmate referrals.

As in the original study, a subset of participants (n = 464) were administered the SCID. In order to examine the validity of the new instrument, the researchers compared the results from the SCID with the results from the screen. As expected, the new instrument provided better sensitivity (65% vs. 46%) and a lower rate of false negatives (15% vs. 35%) than the BJMHS in the original study. However, the overall accuracy of

the instrument was negatively impacted by the additional questions. More specifically, the instrument generated a much higher rate of false positives.

Interestingly and unexpectedly, when examining the subset of questions that made up the original BJMHS in this second study, researchers found similar improvements with a sensitivity of 61% and a false-negative rate of 14%. The researchers made two hypotheses with respect to the differences between the results of the 8-item original BJMHS found in the first and second study. Their first hypothesis suggested that differences in the number of false negatives may have been a result of the different jails included in the study and that therefore results may have been impacted by factors such as the base rate of mental illness. Their second hypothesis is that the differing results may simply be due to sampling error (i.e., confidence interval for false negatives is somewhere between 14 and 37%). As a result of their unusual findings in the second study, Steadman and his colleagues have suggested the use of their original 8-item tool, the BJMHS, for both males and females.

In sum, while the BJMHS appears to be a valid brief mental health screening tool, additional research is needed to examine its variability in sensitivity and specificity between studies and to explore the impact of screener variables (e.g., gender) on referral rates. The major advantage of the BJMHS is that it is a tool that can be administered quickly (2-3 minutes) by those with little (or no) mental health training, including correctional officers at the time of booking.

Jail Screening Assessment Tool

The Jail Screening Assessment Tool (JSAT; Nicholls et al., 2005) takes a different approach to mental health screening. It is a semi-structured assessment tool created specifically for the jail setting whereby mental health intake evaluators use structured professional judgment to make institutional referrals and recommendations following a semi-structured interview with an inmate. In addition to placement recommendations and referrals, mental health screeners use the JSAT to document mental health symptoms and to make global predictions of adjustment difficulties across three domains: suicide/self harm, violence, and victimization.

Structured professional judgment tools are designed to help mental health professionals systematically and consistently gather data based on evidence-based guidelines or frameworks. They are designed to promote consistency in decision making while remaining flexible enough to account for case-specific influences (Douglas, Cox, & Webster, 1999, Hart, 1998). The JSAT therefore recommends that mental health screeners should, at a minimum, have training and experience in acute psychiatry, correctional populations and mental health assessment techniques. As a result, it has been criticized as being too reliant on "mental health professionals" and therefore too expensive for jails in the US (Levin, 2008, p. 3).

The major advantages of the JSAT are related to the fact that it documents and rates the individuals current functioning across a number of domains. Not only does it record the inmates mental health status across 24 symptoms areas and the inmates current alcohol/drug (mis)use but it also documents history of mental health and substance abuse treatment, sources of social support and background information. Moreover, it assesses

27

the individuals risk across three domains including suicide/self-harm, violence, and victimization. The suicide risk assessment is a distinct advantage over the BJMHS, which must be coupled with a suicide screen. For some settings, another advantage of the JSAT over the BJMHS is that the JSAT screens for mental disorders across the spectrum of severity.

Two studies have examined the validity of the JSAT as a mental health screening tool (Nicholls, Lee, Corrado, & Ogloff, 2004; Tien et al., 1993). In the first study, 303 male inmates were screened with an earlier version of the JSAT. Approximately 30% of the inmates were referred for a secondary assessment. One to four days later, the inmates were administered the SCID including the Global Assessment of Functioning Scale (GAF) by interviewers blind to the results of the screening. Inmates referred for mental health treatment had significantly higher GAF scores than those who had not been referred. In addition, when compared to the SCID, the screening missed very few individuals with major mental disorders. As expected from a screening tool, there were more false positives (33%) than false negatives (16%).

In the second study, the results from the JSAT were compared with the SCID in a sample of 29 women (Nicholls et al., 2004). The JSAT had a sensitivity of 70.6% and a specificity of 75% when compared to SCID Axis I disorders (excluding substance use disorders). The false positive rate was 29.4% and the false negative rate was 25%. All women who were diagnosed with disorders involving psychoses were correctly identified as needing a referral. Similarly 100% of women diagnosed with an anxiety disorder and 70% of those with a major mood disorder were appropriately referred. The authors

28

conclude that these preliminary results suggest that the JSAT is a potentially effective tool for screening female inmates.

In sum, early research suggests that the JSAT has good validity with both male and female offenders. Nonetheless, more research is needed using larger samples to examine the robustness of the findings.

The Present Study

The vastly different screening approaches adopted by the BJMHS and the JSAT and the paucity of research comparing the performance of different mental health screening instruments led to the design of the current study. The purpose of this study was to compare the BJMHS and JSAT referral rates and predictive validity in the same sample of pretrial inmates in British Columbia, Canada. More specifically, it examines the referral rate of each instrument, the level of agreement between the two screening measures and their predictive validity with respect to various definitions of mental disorder (from narrow to broad).

Based on previous research and the purpose of the instruments we had three hypotheses. First, given the scope of the JSAT (includes less serious disorders, suicide, violence and victimization), we hypothesized that the JSAT would refer more individuals to the mental health program for a secondary assessment than the BJMHS. Second, given their status as screening instruments and their slightly different purposes, we hypothesized that the screens would show a moderate level of agreement with each other. Third, given its more narrow focus, we hypothesized that the predictive validity of the BJMHS with respect to the narrow definition of mental disorder (serious mental disorders

only) would be superior to its predictive validity with respect to broader definitions of

mental disorder. We further hypothesized that the JSAT would show more consistent

predictive validity across definitions of mental disorder.

METHOD

Participants

The final sample comprised 1339 males admitted to North Fraser Pretrial Centre (North Fraser) between November 9th 2007 and June 6th 2008. North Fraser Pretrial Centre is a remand facility located in Port Coquitlam, British Columbia which houses adult men on remand (both before and during trial), men who have just been sentenced and men who are in transit from one penal institution to another. North Fraser's capacity is 490 and it admits approximately 500 new inmates each month (personal communications, North Fraser records, September, 2007). Subject to administrative constraints, consecutive admissions to North Fraser were invited to take part in the first phase of this study. Participants in this phase of the study were provided with a snack-sized bag of potato chips or package of cookies for their participation (approximate value: 50 cents). An additional 73 men were approached but declined to participate. Twenty-six men were deemed incapable of giving informed consent for their participation either as a result of language difficulties, severe disorientation and/or severe substance intoxication.

The majority of participants were remanded (inmates who have been charged with an offence and ordered by the court to be detained in custody while awaiting bail or a further court appearance; 86.2%) or recently sentenced (11.9%). A small number of participants were on immigration hold (1.8%). Twenty-eight participants were of unknown legal status.

The majority of inmates were currently facing a self-reported primary index offense of breach (50%) and/or a property offense (30.2%). A smaller number of participants were facing charges related to offenses against persons (21.9%) and/or drug related offenses (11.7%). Most participants had been previously incarcerated or detained (90.5%) with the majority of these incarcerated within the last month (30.3%) or within the last six months (45.4%). Nearly half of participants reported at least one past violent offense (47.7%).

Participants were between 18 and 66 years of age with a mean of 34.73 ($SD = 9.6$) years. Most men reported being single (61.4%) but a minority reported being either married/common law (15.3%) or currently had a girlfriend/boyfriend (13.5%). Fifty-six percent did not report having children.

Participants for the second phase of the study were recruited from the population of participants in the first phase. In order to ensure that an adequate number of inmates with mental health problems were sampled in the second phase of the study, a stratified random sampling procedure was used in order to identify an approximately equal number of cases and non-cases. A case was defined as an individual who either as a result of the JSAT *or* as determined by the BJMHS referral rules, was referred to the mental health program for further assessment. A non-case was an individual whose screening with the JSAT *and* the BJMHS did not result in a referral. A total of 110 males participated in the second phase of the study but four withdrew before completing their participation and therefore were subsequently dropped. Complete data were therefore available for 106 phase 2 participants, 50 non-cases and 56 cases. The subsample of inmates who participated in the second phase of the study did not differ significantly from the sample

of inmates in the first phase on age, t (1443) = 1.0536, p = .292, or legal status, x^2 (2, N = 1,315) = .074, p = .964. As an incentive in the second phase of the study, a $10 credit was added to each participant's inmate account.

Measures

Jail Screening Assessment Tool

The JSAT (Nicholls, et al., 2005) is a structured professional screening instrument created specifically for the jail setting. The objectives of the JSAT are to (1) assess the inmate's current level of functioning (based on the past month), (2) predict an expected level of adjustment within the institution, (3) identify any need for mental health services and (4) refer to appropriate corrections personnel and/or licensed mental health professionals those inmates who have special needs or risks that require unique intervention, supervision or management. The JSAT should normally be administered by an individual who has some expertise with acute psychiatry, correctional populations, and psychological assessment techniques including experience conducting semi-structured interviews. The JSAT is composed of a comprehensive manual and the JSAT Coding Form. The JSAT interview and Coding Form take approximately 15 minutes to complete.

Using the JSAT involves two key steps. In the first step, intake interviewers use a semi-structured interview to gather pertinent information from the inmate. Information gathered by the interviewer includes the inmate's legal status, social circumstances, substance use, mental health history and suicide/self harm issues. The inmates mental health status is coded using the Brief Psychiatric Rating Scale - Extended (BPRS-E; Lukoff, Liberman, & Nuechterlein, 1986) which is included as part of the JSAT

interview. The BPRS-E consists of 24 symptom constructs which are coded based on

self-reported information gathered during an interview and observations. While the

BPRS-E is normally coded on a 7-point scale, it is coded on a 3-point scale in the JSAT

(0 = *absent*, 1 = *possible*, 2 = *present*). The JSAT interview and Coding Form consist of a

total of 11 subsections as seen in Table 1.

Table 1. *JSAT Coding Form Subsections*

Identifying Information
Legal Situation
Violence Issues
Social Background
Substance Use
Mental Health Treatment
Suicide/Self-harm Issues
Mental Health Status
Management Recommendations
Risk Ratings
Comments/Clarification

The second step in the JSAT involves making management recommendations and

referrals based on the information gathered during the JSAT interview. Management

recommendations are made based on the mental health screeners structured professional

judgment rather than by using strict referral rules. In the Management Recommendations

section of the JSAT, the intake interviewer identifies whether there are any noteworthy

Mental Health Issues and whether the inmate is at risk for suicide/self-harm, violence or

victimization. Finally, the screener makes Placement Recommendations and Referrals

based on the available options within the institution. The subsections that make up the

JSAT Management Recommendations section are presented in Table 2.

Table 2. *Management Recommendations Section of the JSAT Coding Form*

Risk Ratings	Mental Health Issues	Placement Recommendations	Referrals
Suicide/ Self-Harm	Situational stress/depression	Double Bunk for Support	Monitor/Reassess Mental Status
Violence	Possible anxiety/mood disorder	Single Bunk (regular unit)	Evaluate for Counseling
Victimization	History of psychotic/bipolar disorder - Currently stable	PC Unit	Referred/Assess for Medication
	Possible recurrent psychotic symptoms	MDO Unit	Drug and Alcohol Assessment/Counseling
	Active current psychosis	Segregation	Other
	Intellectual disability / Brain damage	Suicide Watch	
	Personality disorder traits	Stable/Quiet Unit	
	Other	Other	

Brief Jail Mental Health Screen

The Brief Jail Mental Health Screen (BJMHS) is a short screening tool aimed at

aiding "in the early identification of severe mental illnesses and other acute psychiatric

problems during the intake process" (Steadman et al., 2005, p. 2). In contrast to the

JSAT, which should be administered by an intake interviewer with some mental health

expertise, the BJMHS can be administered by Correctional Officers during the jail's

intake and booking process. The BJMHS takes between 2-4 minutes to complete.

The BJMHS comprises three sections. The first section is aimed at collecting

basic identifying information including the inmates name and date of birth. The second

section is made up of eight items assessing the presence of various psychiatric symptoms,

current use of psychotropic medications and/or past admission to hospital for mental

health purposes. Each item is coded as a "yes" or a "no". A yes response requires the

intake interviewer to ask any other information that he or she feels is relevant. The

BJMHS' eight items are presented in Table 3. The third section of the BJMHS is

optional. It provides a place for intake interviewers to indicate whether there were any

problems with the screening interview including language barriers, whether the inmate is

under the influence of drugs/alcohol or whether the inmate is uncooperative.

Table 3. *BJMHS Items*

1. Do you *currently* believe that someone can control your mind by putting thoughts into your head or taking thoughts out of your head?

2. Do you *currently* feel that other people know your thoughts and can read your mind?

3. Have you *currently* lost or gained as much as two pounds a week for several weeks without even trying?

4. Have you or your family or friends noticed that you are *currently* much more active than you usually are?

5. Do you *currently* feel like you have to talk or move more slowly than you usually do?

6. Have there *currently* been a few weeks when you felt like you were useless or sinful?

7. Are you *currently* taking any medication prescribed for you by a physician for any emotional or mental health problems?

8. Have you *ever* been in a hospital for emotional or mental health problems?

Inmates are referred for a further mental health evaluation based on the answers to

the eight questions coded in the second section of the BJMHS. As an actuarial scheme,

the BJMHS has comparatively strict referral rules. If a "yes" response is noted to two or

more of the first six questions (psychopathological symptoms) or a "yes" response is

noted to one or more of the last two questions (current use of psychotropic medications or

previous admission to hospital for mental health reasons), the inmate is referred for a further mental health evaluation. All other inmates are normally not referred. The scheme does allow for discretionary decision making by allowing the intake interviewer to refer the inmate if they feel that it is necessary to do so despite their answers to the eight questions. How often the discretionary override is used in practice is not clear, its use was not reported in either of the two BJMHS studies published by Steadman and his colleagues (2005, 2007). The discretionary referral option was not used in this study.

Structured Clinical Interview for DSM-IV

The Structured Clinical Interview for DSM-IV Non-Patient Edition (SCID, First et al., 1998) is a semi-structured diagnostic interview designed to assist clinicians and researchers in making reliable DSM-IV psychiatric diagnoses. The SCID allows for the reliable diagnoses (both lifetime and current) of a number of psychiatric conditions including depressive disorders, anxiety disorders and substance use disorders. While the non-patient edition of the SCID does not usually include a module assessing the presence of psychotic disorders, this module was added given the prevalence of these disorders in correctional settings and the importance of identifying individuals suffering from psychosis very early in their admission. Interviewers gathered information to diagnose both lifetime and current mental disorders. The SCID takes approximately 1.5 to 2.0 hours to administer.

Procedure

At North Fraser, all inmates go through a standard intake procedure. Upon arrival, inmates are searched and photographed before they shower and change into institutional

clothing. New admissions are then screened by a nurse for communicable diseases and other health issues and then screened by a mental health worker for mental health concerns. The mental health screening in place at North Fraser Pretrial at the time of this study included the JSAT interview and an electronic version of the JSAT Coding Form. The mental health screeners were individuals with mental health training and experience who were all currently employed to provide mental health screening services at North Fraser Pretrial. All five screeners had an undergraduate degree in the social sciences and three held a Masters degree in forensic psychology.

North Fraser Pretrial Center's mental health workers asked inmates to participate in this study before beginning their standard mental health screening. Once consent was given, no participant in the first phase of the study subsequently withdrew their participation. Inmates were not asked to participate in those cases where the mental health worker believed the inmate was incapable of consent, and these instances were recorded.

Once identified as a participant, the mental health screeners administered the JSAT and BJMHS in a random counterbalanced fashion such that approximately half of the participants were administered the JSAT first followed by the BJMHS, whereas the other half were administered the BJMHS followed by the JSAT. After completing the interview for the first instrument, the intake interviewer completed the coding form specific to that instrument noting their referral based solely on that instrument. The intake interviewer then interviewed the inmate with the second instrument and completed the coding form specific to that second instrument again, noting whether the inmate should be referred to the mental health program based solely on that second instrument.

Interviews took place in a private office set aside for the purpose of mental health screening. These two interviews took a total of approximately 7 to 20 minutes.

For the purposes of this study, all North Fraser mental health workers were fully trained in the administration of the JSAT by two of the authors of the JSAT and on the administration of the BJMHS by the principal investigator (i.e., N. Gagnon). For the purposes of the JSAT, three of the five screeners were trained in the administration of the BPRS by a renowned expert (i.e., Joseph Ventura). While two of the five screeners did not attend BPRS training, they did participate in the BPRS component of the JSAT training. In addition, one of the two had had similar expert training in the past. In order to ensure that differences in BPRS training did not result in differences in BPRS scores, the screeners BPRS scores were compared. No differences were found in BPRS total scores for those screeners who had this advanced training and those who did not, t (1299) = .598, p = .550.

One to three days (M = 1.61, SD = .97) after a participant had been admitted to North Fraser, researchers blind to the results of the first phase of the study approached a stratified random sample of participants to determine whether they were interested in participating in the second phase of the study. The researcher then conducted the SCID interview with participants in a space set aside for private meetings. SCID interviews took approximately two to three hours. Participants were provided with breaks as needed. Once the SCID interview was completed, the participant's inmate account was credited with $10. In addition, all participants were provided with a Health Care Requisition Form which allowed them to self-refer to internal health care services including the mental health worker.

Training in the SCID was provided to all researchers in the second phase of the study using the SCID-101 Didactic Training Series. This training series consists of an eleven hour video course in the use of the SCID. Four of the five researchers were graduate students in clinical psychology with broad experience and training in mental health assessment and interviewing. The fifth researcher had extensive experience in completing mental status interviews and had completed her undergraduate degree in psychology.

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RESULTS

JSAT Subsection and Referrals

In each of the subsections of the JSAT interview, participants provided self-reported information relevant to a number of mental health domains. In addition, following the JSAT interview, mental health screeners made a series of risk ratings and management recommendations. The results of the JSAT interview are presented below.

Mental Health Status

As indicated in Table 4, the mean scores on the Mental Status items (i.e., BPRS-E) subsection of the JSAT ranged from a low of .00 for elevated mood (SD = .00), motor retardation (SD = .05) and mannerisms/posturing (SD = .03) to a high of .31 (SD = .63) for anxiety. The item elevated mood had no variability, having been scored as 0 for all 1339 participants. The items with the highest endorsement rate (i.e., *possible* or *present*) were depression (21.4%), anxiety (17.0%), somatic concerns (15.1%), and self-neglect (10.3%). All other items had an endorsement rate of fewer than 10%.

The item scores were added together to make a total score. The mean total score for all participants was 1.78 (SD = 2.83). Most participants total score was 0 (51.8%), 1 (11.9%) or 2 (12.2%). Less than 20% scored a total of four or more (19.0%), a score that suggests the presence of two symptoms, the presence of one symptom with the possible presence of three symptoms, or the possible presence of four symptoms.

Table 4. *Descriptive Statistics for the Brief Psychiatric Rating Scale-Extended*

BPRS-E Items	Frequencies of Scores (%)			Mean	SD
	Absent	Possible	Present		
1. Somatic Concerns	84.9	4.2	10.9	.26	.641
2. Anxiety	83.0	10.1	6.9	.31	.628
3. Depression	78.6	12.3	9.1	.24	.565
4. Suicidality	97.9	1.3	.8	.03	.212
5. Guilt	97.6	1.3	1.1	.04	.237
6. Hostility	95.5	2.9	1.6	.06	.297
7. Elevated Mood	100	0	0	.00	.000
8. Grandiosity	92.2	1.0	.8	.03	.205
9. Suspiciousness	93.7	3.5	2.8	.09	.371
10. Hallucinations	92.3	4.0	3.7	.11	.417
11. Unusual Thought Content	93.6	3.4	3.0	.09	.381
12. Bizarre Behavior	98.4	1.0	.5	.02	.176
13. Self-Neglect	89.7	4.0	6.3	.17	.514
14. Disorientation	99.0	.7	.3	.01	.136
15. Conceptual Disorganization	97.9	.9	1.2	.03	.236
16. Blunted Affect	93.4	3.8	2.8	.09	.378
17. Emotional	98.6	1.0	.4	.02	.165
18. Motor Retardation	99.8	.2	0	.00	.047
19. Tension	94.4	2.5	3.1	.09	.378
20. Uncooperativeness	98.1	1.1	.8	.03	.208
21. Excitement	98.8	.5	.7	.02	.178
22. Distractibility	98.7	.7	.6	.02	.174
23. Motor Hyperactivity	98.4	.8	.7	.02	.194
24. Mannerisms and posturing	99.9	.1	0	.00	.027
Total				1.78	2.83

Suicide and Self Harm

Nearly 15% (14.6%) of participants reported a previous suicide attempt. Of those

who reported a previous attempt, the most frequently reported method was overdose

(41%) and slashing (29.7%). A small number of participants admitted attempting suicide

while incarcerated (3.1%) with most of these, attempting by slashing (78.3%). Few

inmates reported current suicidal ideation and/or intent (4.1%). At the conclusion of the

42

interview, mental health screeners rated suicide/self-harm risk for a minority of

participants as "concerns" (2.1%) or "high risk" (.2%) with the remainder rated as having

no evident risk.

Mental Health Treatment

Many of the men had a history of mental health treatment or assessment (40.3%).

Most often self-reported treatment took the form of psychiatric medication with over one-

quarter of participants reporting the use of psychiatric medications for the treatment of

mental health problems over their lifetime (26.3%). Nearly one-tenth (9.2%) reported

using psychiatric medications within the last month. Psychiatric hospitalizations or

inpatient mental health treatment was self-reported by almost 15% of participants

(14.3%). A similar number of participants reported having participated in community

treatment (13.7%) or having had a mental health assessment (16.6%). Despite the large

number of participants reporting a previous incarceration or detention (90.5%), very few

reported having participated in correctional mental health treatment (4.5%). A number of

inmates reported a history of head injury (11.8%).

Substance Use

The majority of participants reported some substance use (87.5%). Most

participants reported using alcohol (70.6%) and marijuana (52.8%). Nearly half admitted

using heroin (45.6%). Approximately one-quarter of the sample admitted to using

methamphetamines (24.3%), cocaine (23.2%) or "other" substances (22.4%, e.g.,

illegally obtained prescription medications).

Consistent with prior research, many of the men reported currently abusing at least one drug/alcohol (44.7%) and a further nearly 20% reported abusing substances in the past (19.6%). Approximately half of those who were currently abusing at least one drug/alcohol reported currently abusing two or more drugs/alcohol (50.1%). The most common substances currently being abused were cocaine (23.2%), heroin (15.4%) and/or alcohol (14.7%).

More than half the sample reported participating in some type of substance abuse treatment in the past (51.8%), with nearly a third participating in two or more treatment programs (32.7%). The most common types of substance abuse treatment were participation in Treatment Centres (26.9%) and/or Recovery Houses (25.0%). A number of men also participated in a "Detox" program (20.9%) or Alcoholics /Narcotics Anonymous (20.1%). Approximately ten percent of the sample (10.7%) admitted to participating in a methadone program at some point in the past. A further ten percent (10.2%) reported that they were currently participating in such a treatment program.

Violence and Aggression

Nearly half of the sample reported at least one past violent offense (47.7%). A number of individuals also reported being involved in a violent incident while incarcerated (21.0%) or having been charged with an institutional infraction (13.7%). Despite this relatively high level of self-reported violence, mental health screeners rated the vast majority of inmates' violence risk as "not evident" (91.2%) with very few participants rated as "high risk" (.1%). Similarly, current anger and/or aggression appeared to be a concern for very few inmates (1.9%).

Management Recommendations

Within the Management Recommendations section of the JSAT Coding Form,

mental health screeners indicated whether they believed there to be Mental Health Issues

(see Table 5), Placement Recommendations (see Table 6) and Referrals (see Table 7).

Mental health issues were rated as present for approximately one third of the

participants (34.4%). The mental health issues most often endorsed by the mental health

screeners were "possible anxiety/mood disorder" (11.2%) and "situational

stress/depression" (9.1%).

Table 5. *JSAT Frequency of Mental Health Issues*

Mental Health Issues	34.4%
Situational stress/depression	9.1%
Possible anxiety/mood disorder	11.2%
History of psychotic/bipolar disorder - Currently stable	4.7%
Possible recurrent psychotic symptoms	5.2%
Active current psychosis	2.3%
Intellectual disability / Brain damage	2.2%
Personality disorder traits	4.0%
Other	1.8%

Mental health screeners made no placement recommendations for the vast

majority of inmates (89.8%). The recommendation most often made by screeners was for

placement in an MDO (Mentally Disordered Offender) unit (7.2%), segregation (1.6%) or

suicide watch (1.0%).

Table 6. *JSAT Frequency of Placement Recommendations*

No Placement Recommendation	**89.8%**
Double Bunk for Support (regular unit)[a]	0.1%
Single Bunk (regular unit)[a]	0.0%
PC Unit[b]	0.0%
MDO Unit[c]	7.2%
Segregation	1.6%
Suicide Watch	1.0%
Stable/Quiet Unit	0.3%
Other	0.1%

Note. [a]Due to over-crowding, double bunking is the norm at North Fraser Pretrial and single bunking is not perceived to be a realistic placement option. [b]PC stands for Protective Custody. [c]MDO stands for Mentally Disorder Offender.

Most inmates were not referred for a further mental health assessment following the JSAT screen (85.7%). As seen in Table 7, the majority of those who were referred were for "monitor/reassess mental status" (10.5%) or to "evaluate for counseling/provide support" (1.7%). There was no difference between screeners in referral rates, F (4,1233) = 1.35, p = .25.

Table 7. *JSAT Referrals*

Referred	**14.3%**
Monitor/Reassess Mental Status	10.5%
Evaluate for Counseling/Provide Support	1.7%
Referred/Assess for Medication	0.0%
Drug and Alcohol Assessment/Counseling	0.1%
Other	0.4%

Note. The exact nature of the referral was not indicated in 1.6% of referrals.

The association between referrals, mental health issues and placement recommendations is presented in Table 8. Several inmates with potential mental health issues were not referred to the mental health program (21.5%). In addition, in a small number of cases, mental health screeners made placement recommendations but did not refer the inmate to the mental health program (2.9%). There is therefore not a one-to-one correspondence with the indication of mental health issues and referrals or placement recommendations and referrals. It should be noted however that at North Fraser Pretrial individuals who are placed in an MDO unit, segregation or under suicide watch are automatically monitored on an ongoing basis by health care staff.

Table 8. *Mental Health Issues and Placement Recommendations by JSAT Referrals*

		Referred	Not Referred
Mental Health Issues	Yes	12.9%	21.5%
	No	0.4%	59.2%
Placement Recommendations	Yes	8.1%	2.9%
	No	5.4%	77.6%

To examine the degree to which various subsections of the JSAT contributed to JSAT referrals, the sensitivity and specificity associated with the Management Recommendations and Mental Status subsections of the JSAT, as they relate to JSAT referrals, are presented in Table 9. The subsections with the most sensitivity were Mental Health Issues and Placement Recommendations, the subsection with the least sensitivity was Risk Ratings.

Table 9. *Agreement Between JSAT Subsections and Referrals*

JSAT Subsection	Endorsement	Sensitivity (95% CI)	Specificity (95% CI)
Mental Health Issues	34.4%	.966 (±.010)	.735 (±.024)
Placement Recommendations	10.2%	.598 (±.027)	.964 (±.010)
Risk Rating[a]	7.7%	.324 (±.026)	.960 (±.011)
BPRS-E Total Score ≥ 4	19.0%	.577 (±.027)	.938 (±.013)

Note. [a] Includes violence, suicide/self-arm and/or victimization risk of *concerns* or *high risk.*

BJMHS Items and Referrals

Forty-five percent of inmates were referred using the BJMHS. There were differences between screeners with respect to their referral rates, F (4,1296) = 4.99, p <.001. Screener referral rates ranged from 23.2% to 62.8% and post-hoc analyses, using a Bonferroni correction (i.e., $\alpha/10$), revealed statistically significant differences between several of the screeners' referral rates. In particular, as seen in Table 10, two screeners differed significantly from all (screener 1) or most (screener 2) of the other screeners.

Table 10. *Significant Differences Between Screener Referral Rates*

	Screener 1	Screener 2	Screener 3	Screener 4	Screener 5
Screener 1	23.2 (±5.0)				
Screener 2	***	62.8 (±6.9)			
Screener 3	***	**	46.6 (±5.4)		
Screener 4	***	**		47.8 (±4.8)	
Screener 5	***				51.0 (±9.7)

Note. Statistical significance between screeners are indicated below the diagonal and screener referral rates in percentages are denoted on the diagonal, including the 95% confidence interval. ** p < .01/10. *** p <.01/10.

To get a sense of how each of the eight items impacted referrals, the endorsement rate and sensitivity of each item, and the specificity of the first six items were calculated. Results are presented in Table 11. The most frequently endorsed items were item 3 (losing/gaining weight) and item 6 (feeling sinful or guilty). Consequently, these items contributed considerably to BJMHS referrals. Item 3 had a sensitivity of .597 (±.041)[4] and a specificity of .854 (±.028). Item 6 had a sensitivity of .563 (±.041) and a specificity of .934 (±.021).

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[4] Plus and minus (i.e., ±) values provided between parentheses represent the 95% confidence interval throughout.

Table 11. *Endorsement, Sensitivity and Specificity of BJMHS Items*

	Item	Endorsement (95% CI)	Sensitivity (95% CI)	Specificity (95% CI)
1	Do you *currently* believe that someone can control your mind by putting thoughts into your head or taking thoughts out of your head?	10.2 (±1.61)	.214 (±.032)	.988 (±.012)
2	Do you *currently* feel that other people know your thoughts and can read your mind?	8.2 (±1.47)	.172 (±.029)	.990 (±.011)
3	Have you *currently* lost or gained as much as two pounds a week for several weeks without even trying?	34.7 (±2.54)	.597 (±.041)	.854 (±.028)
4	Have you or your family or friends noticed that you are *currently* much more active than you usually are?	14.8 (±1.86)	.288 (±0.36)	.964 (±.016)
5	Do you *currently* feel like you have to talk or move more slowly than you usually do?	13.7 (±1.80)	.277 (±.035)	.976 (±.015)
6	Have there *currently* been a few weeks when you felt like you were useless or sinful?	28.8 (±2.41)	.563 (±.041)	.934 (±.021)
7	Are you *currently* taking any medication prescribed for you by a physician for any emotional or mental health problems?	14.6 (±1.86)	.328 (±.038)	---
8	Have you *ever* been in a hospital for emotional or mental health problems?	16.9 (±1.96)	.382 (±.040)	---

Note. Since item 7 and 8 automatically lead to a referral, the specificity of the items need not be calculated. They will necessarily be 1.

To further examine the role of each item on the referral rates, each of the eight items was systematically removed from the screen and referral rates without that item

were examined. The sensitivity and specificity of each item was then computed for the modified test. Results are presented in Table 12 to Table 19.

As can be seen, the removal of individual items makes relatively small changes in individual item sensitivity and specificity. Not surprisingly, removing item 3 or item 6 results in the biggest change in referral rates. Without item 3, referral rates drop from 45.0% to 31.6%. Without item 6, referral rates drop to 32.7%. Removing item 7 has the smallest impact, reducing the referral rate to 40.1%.

Table 12. *BJMHS Item Referral Sensitivity and Specificity with Item 1 Removed*

Item	Sensitivity (95% CI)	Specificity (95% CI)
2	.150 (±.036)	.988 (±.011)
3	.631 (±.045)	.850 (±.024)
4	.297 (±.040)	.964 (±.012)
5	.306 (±.044)	.975 (±.015)
6	.591 (±.044)	.932 (±.017)
7	.186 (±.034)	---
8	.253 (±.038)	---

Note. Referral rate without item is 38.7%.

Table 13. *BJMHS Item Referral Sensitivity and Specificity with Item 2 Removed*

Item	Sensitivity (95% CI)	Specificity (95% CI)
1	.208 (±.040)	.985 (±.007)
3	.636 (±.043)	.853 (±.024)
4	.293 (±.043)	.961 (±.012)
5	.307 (±.044)	.976 (±.009)
6	.587 (±.045)	.931 (±.016)
7	.185 (±.039)	---
8	.253 (±.042)	---

Note. Referral rate without item is 38.8%.

Table 14. *BJMHS Item Referral Sensitivity and Specificity with Item 3 Removed*

Item	Sensitivity (95% CI)	Specificity (95% CI)
1	.248 (±.047)	.983 (±.007)
2	.183 (±.043)	.989 (±.006)
4	.315 (±.041)	.945 (±.015)
5	.333 (±.050)	.958 (±.012)
6	.589 (±.049)	.877 (±.021)
7	.227 (±.046)	---
8	.310 (±.049)	---

Note. Referral rate without item is 31.6%.

Table 15. *BJMHS Item Referral Sensitivity and Specificity with Item 4 Removed*

Item	Sensitivity (95% CI)	Specificity (95% CI)
1	.224 (±.042)	.987 (±.006)
2	.157 (±.038)	.987 (±.006)
3	.637 (±.044)	.836 (±.025)
5	.325 (±.046)	.976 (±.009)
6	.601 (±.045)	.919 (±.018)
7	.197 (±.041)	---
8	.269 (±.044)	---

Note. Referral rate without item is 36.4%.

Table 16. *BJMHS Item Referral Sensitivity and Specificity with Item 5 Removed*

Item	Sensitivity (95% CI)	Specificity (95% CI)
1	.218 (±.042)	.987 (±.006)
2	.159 (±.038)	.991 (±.005)
3	.627 (±.044)	.837 (±.025)
4	.308 (±.045)	.965 (±.011)
6	.598 (±.045)	.926 (±.017)
7	.192 (±.040)	---
8	.262 (±.043)	---

Note. Referral rate without item is 37.4%.

Table 17. *BJMHS Item Referral Sensitivity and Specificity with Item 6 Removed*

Item	Sensitivity (95% CI)	Specificity (95% CI)
1	.245 (±.046)	.985 (±.007)
2	.173 (±.041)	.987 (±.012)
3	.623 (±.047)	.802 (±.027)
4	.318 (±.048)	.950 (±.014)
5	.343 (±.049)	.967 (±.011)
7	.220 (±.044)	---
8	.300 (±.048)	---

Note. Referral rate without item is 32.6%.

Table 18. *BJMHS Item Referral Sensitivity and Specificity with Item 7 Removed*

Item	Sensitivity (95% CI)	Specificity (95% CI)
1	.238 (±.040)	.989 (±.005)
2	.189 (±.037)	.989 (±.005)
3	.622 (±.041)	.840 (±.024)
4	.318 (±.042)	.966 (±.011)
5	.301 (±.042)	.976 (±.009)
6	.614 (±.041)	.935 (±.016)
8	.423 (±.043)	---

Note. Referral rate without item is 40.1%.

Table 19. *BJMHS Item Referral Sensitivity and Specificity with item 8 Removed*

Item	Sensitivity (95% CI)	Specificity (95% CI)
1	.238 (±.039)	.985 (±.007)
2	.194 (±.037)	.990 (±.005)
3	.650 (±.040)	.851 (±.023)
4	.322 (±.042)	.964 (±.011)
5	.310 (±.042)	.977 (±.008)
6	.615 (±.041)	.926 (±.017)
7	.371 (±.044)	---

Note. Referral rate without item is 39.3%.

Agreement between BJMHS and JSAT

Results of the BJMHS screen were compared with the results of the JSAT. Since the BJMHS and the JSAT were administered to each participant (in a randomized, counterbalanced fashion), there was a potential for order effects. Referral rates were examined for each order separately and results revealed no significant order effects for either the BJMHS, $z = 1.018$, $p = .309$ or the JSAT, $z = 0.434$; $p = .664$. As a result, all subsequent analyses do not include order as a variable.

The mental health screeners referred 14.3% (±1.85%) of participants using the JSAT, significantly less than the 45% (±2.7%), referred using the BJMHS, $z = 17.28$, $p < .001$. The overall agreement between the JSAT and the BJMHS was 65.0% (±2.62%). To further examine the degree to which the two screening instruments agreed, Cohen's Kappa was calculated based on the two by two contingency table presented in Table 17, k

= .245, *p* <.001. Kappa values between .2 and .4 are usually indicative of a fair level of

agreement (Landis & Koch, 1977). Kappa is an index of chance-corrected agreement.

Table 20. *Comparison of BJMHS and JSAT Referrals*

		JSAT Referral	
		No	Yes
BJMHS Referral	No	672 (52.9%)	28 (2.2%)
	Yes	417 (32.8%)	154 (12.1%)

Note. N=1271

The majority of JSAT referrals were also referrals with the BJMHS (84.6%).

However, the majority of BJMHS referrals were not referred by the JSAT (72.5%). This

is not surprising given the BJMHS' much higher referral rate.

To examine whether the 28 individuals referred by the JSAT but not by the

BJMHS were a result of concerns regarding suicide (recall that the BJMHS does not

screen for suicide), the JSAT placement recommendations and suicide risk ratings for

each of the 28 were examined. Concerns around suicide appears to have contributed to

referrals in 4 of the 28 cases. That is, four individuals admitted to some suicidal intent,

were rated as "high risk" for suicide and placed by screeners under suicide watch. The

remaining 24 inmates reported no suicidal ideation or intent and their suicide risk was

rated as "not evident."

To examine what might have led mental health screeners to refer the remaining 24

inmates, the Mental Health Issues and Placement Recommendations sections of the JSAT

Management Recommendations were examined. As seen in Table 21, mental health

screeners noted potential mental health issues and made placement recommendations in a

number of cases.

Table 21. *Placement and Mental Health Issues for those Referred by JSAT but not by BJMHS*

	No Placement	MDO Unit	Segregation	Suicide	Stable/Quiet Unit
Mental Health Issues	17	3	1	4	1
No Mental Health Issues	2	0	0	0	0

Note. N=28

The majority of the 417 participants referred by the BJMHS but not by the JSAT

was referred by answering "yes" to 2 of the first 6 BJMHS questions (53%). Twelve

percent were referred by answering "yes" to question number 7 and approximately ten

percent (10.1%) were referred by answering "yes" to question number 8. Nearly a quarter

of the 417 individuals met multiple referral rules (24.9%).

Placement Recommendations and Mental Health Issues where examined for those

referred by the BJMHS but not by the JSAT. Despite the fact that they made no referrals,

the mental health screeners reported the presence of mental health issues on the JSAT

Coding Form in approximately half of this group (46.5%). The most common mental

health issues were "possible anxiety/mood disorder" (18.5%) or "situational

stress/depression" (13.4%). Interestingly a small number of individuals were believed to

have issues around "possible recurrent psychotic symptoms" (3.4%) or a "history of

bipolar disorder but currently stable" (8.2%). In addition, two individuals (.5%) were

noted to have "active current psychosis".

In addition to reporting the presence of mental health issues for this group of non-referred inmates, the mental health screeners also made placement recommendations in a number of cases (6.7%; see Table 22). In many of those cases, the specialized placement recommendation was a MDO unit (5.5%).

Table 22. *Placement Recommendations for those Referred by BJMHS but not by JSAT*

No Placement Recommendation	93.3%
Double Bunk for Support (regular unit)[a]	.2%
Single Bunk (regular unit)[a]	0%
PC Unit[b]	0%
MDO Unit[c]	5.5%
Segregation	.2%
Suicide Watch	0%
Stable/Quiet Unit	.5%
Other	.2%

Note. [a]Due to over-crowding, double bunking is the norm at North Fraser Pretrial and single bunking is not perceived to be a realistic placement option. [b]PC stands for Protective Custody. [c]MDO stands for Mentally Disorder Offender.

SCID and Mental Disorders

The prevalence of lifetime and current Axis I DSM diagnoses for the sample of inmates in Phase 2 (N = 106) are presented in Table 23. Due to the over-sampling of offenders with mental health problems, these rates over-estimate the true rate of DSM diagnoses among offenders admitted to the jail. The most common diagnosis was major depressive disorder, with 10.4% of the sample meeting criteria for the disorder based on symptoms in the last month and an additional 12.3% meeting criteria for a lifetime

diagnosis. A further 2.8% of the sample had symptoms of major depressive disorder but their symptoms failed to meet the required diagnostic threshold. Several inmates (10.4%) met current diagnostic criteria for disorders characterized by psychotic symptoms and thought disorder such as schizophrenia and schizophreniform disorder.

Table 23. *Percent Who Met SCID Sub-threshold, Lifetime and Current Diagnoses Criteria*

	Sub-threshold[a]		Lifetime		Current	
	%	(±95%CI)	%	(±95%CI)	%	(±95%CI)
Bipolar I	0.9	(±1.6)			2.8	(±3.1)
Bipolar II						
Other Bipolar			1.9	(±2.5)	1.9	(±2.5)
Major Depressive	2.8	(±3.1)	12.3	(±6.2)	10.4	(±5.7)
Depressive Disorder NOS	-----		3.8	(±3.6)		
Mood disorder due to Med. Condition	-----					
Mood Disorder – Substance Induced	-----		2.8	(±3.14)	7.5	(±5.0)
Dysthymia	1.9	(±2.5)	-----		4.7	(±4.0)
Schizophrenia	0.9	(±1.6)			5.7	(±4.4)
Schizophreniform	0.9	(±1.6)	1.9	(±2.5)	0.9	(±1.6)
Schizoaffective	1.9	(±2.5)	0.9	(±1.6)	1.9	(±2.5)
Delusional Disorder						
Brief Psychotic Disorder						
Psychotic Disorder due to Med. Condition	-----					
Psychotic Disorder – Substance Induced	-----		0.9	(±1.6)	1.9	(±2.5)
Panic Disorder			4.7	(±4.0)	5.7	(±4.4)
Agoraphobia						
Social Phobia	2.8	(±3.1)			2.8	(±3.1)
Specific Phobia	2.8	(±3.1)	0.9	(±1.6)	2.8	(±3.1)
Obsessive Compulsive	2.8	(±3.1)			1.9	(±2.5)
Posttraumatic Stress			3.8	(±3.6)	1.9	(±2.5)
Generalized Anxiety			-----		2.8	(±3.1)

Anxiety Disorder Due to Med. Condition)	-----		
Anxiety Disorder – Substance Induced	-----	0.9 (±1.6)	0.9 (±1.6)
Anxiety Disorder NOS	-----		1.9 (±2.5)

Note. N=106. [a]Because of the way the SCID interview is conducted, it is impossible to determine whether symptoms were sub-threshold with respect to a lifetime diagnosis or with respect to a current diagnosis (except in the case of dysthymia and generalized anxiety disorder where symptoms are sub-threshold to a current diagnosis). Empty cells have a frequency of zero.

Consistent with prior research, many of the inmates met diagnostic criteria for substance use disorders, both lifetime and current (see Table 24). The most prevalent substance misused was alcohol with 79.3% meeting diagnostic threshold for either abuse or dependence at some point during their life. Cocaine was also prevalent with 63.2% meeting criteria for a lifetime or current diagnosis of abuse or dependence.

Table 24. *Percent Who Met Criteria for Substance Use Disorders*

	Absent		Lifetime				Current			
			Abuse		Dependence		Abuse		Dependence	
	%	(±95%CI)	%	(±95%CI)	%	(±95%CI)	%	(±95%CI)	%	(±95%CI)
Alcohol	20.7	(±7.6)	26.4	(±8.4)	23.6	(±8.0)	11.3	(±6.0)	15.1	(±6.8)
Sedative	80.2	(±7.6)	4.7	(±4.0)	3.8	(±3.6)			5.7	(±4.4)
Cannabis	59.4	(±9.4)	4.7	(±4.0)	13.2	(±6.4)	7.5	(±5.0)	9.4	(±5.6)
Stimulants	68.9	(±8.9)	5.7	(±4.4)	4.7	(±4.0)	1.9	(±2.5)	14.1	(±6.6)
Opioid	55.7	(±9.5)	3.8	(±3.6)	10.4	(±5.7)	0.9	(±1.8)	21.7	(±7.8)
Cocaine	36.8	(±9.1)	7.5	(±5.0)	14.1	(±6.6)	4.7	(±4.0)	33.0	(±9.0)
Hallucinogenics	83.0	(±7.2)	1.9	(±2.5)	8.5	(±5.3)	0.9	(±1.8)	1.9	(±2.5)
Other	92.4	(±5.2)	1.9	(±2.5)					0.9	(±1.8)

Note. Empty cells have a frequency of zero.

Many of the participants met criteria for both a mental disorder and a substance use disorder. As seen in Table 25, few met criteria for only a mental disorder without concomitantly also meeting criteria for a substance use disorder.

Table 25. *Number Who Met Criteria for Substance Use or Other Mental Disorder(s)*

	No Substance Use Disorder	Substance Use Disorder
No Mental Disorder	32 (30.2%)	37 (34.9%)
Mental Disorder	8 (7.6%)	29 (27.4%)

Note. N=106

Screening Referrals and the SCID

While the SCID is considered by many as the gold standard for providing valid and reliable DSM diagnoses, it may not, as discussed later, provide for a gold standard with which to compare mental health screening. As such, in order to more fully examine the predictive validity of the JSAT and BJMHS, four different definitions of mental disorder were created using different combinations of Axis I diagnoses. In the narrow definition, only those disorders considered most serious were included (i.e., Bipolar I, II and NOS, Major Depression and disorders involving psychoses) consistent with previous research on the BJMHS (e.g., Steadman et al., 2005, 2007). The moderate definition was created by including the other mood disorders, save dysthymia. The broad definition included dysthymia and the anxiety disorders (this definition is consistent with the one used by Nicholls et al., 2004 in the validation of the JSAT with women). Finally, because of the role of substance abuse in criminal behaviour, a fourth definition was created, concurrent disorders, reflecting a category of individuals who met diagnostic criteria for

61

both a substance abuse/dependence disorder and another mental disorder (broadly

defined). Diagnoses by definition are presented in Table 26.

Table 26. *Cumulative Frequency of Current Mental Disorders by Definition*

	Frequency
Narrow Definition	24 (22.6%)
Moderate Definition	30 (28.3%)
Broad Definition	37 (34.9%)
Concurrent Definition	29 (27.4%)

Note. N=106. Each participant is captured only once in each of the definitional categories.

To examine the validity of the BJMHS and the JSAT, screening referrals were

compared against *current* diagnoses according to the 4 definitions of mental disorder

discussed above. As can be seen in Table 27, Kappa values ranged from a low of -.011 to

a high of .290 suggesting only slight to fair agreement across definitions for both

screening measures. The 95% confidence intervals suggest no significant difference in

Kappa values between the various definitions of mental disorder. The only exception is

the JSAT's agreement with the Concurrent definition which appears to be lower than the

JSAT's agreement with the other definitions. Similarly, the 95% confidence intervals

suggest no significant differences in Kappa values between the JSAT and the BJMHS

with the exception of the JSAT's agreement with the Concurrent definition which appears

to be lower than the BJMHS' agreement with the same definition. Since screening tests

are expected to over-refer for a secondary assessment, Kappa values should be

interpreted with caution. That is, while low Kappa values may indicate inadequate

diagnostic validity, they do not imply an invalid screening measure (Faraone & Tsuang,

1994).

Table 27. *Kappa Values for JSAT and BJMHS by Definition*

| | BJMHS | | | JSAT | | |
	Kappa	Lower Bound CI	Upper Bound CI	Kappa	Lower Bound CI	Upper Bound CI
Narrow	.182	-.001	.332	.273	.053	.483
Moderate	.237	.043	.400	.178	-.032	.393
Broad	.290	.087	.463	.257	.045	.452
Concurrent	.206	.013	.370	-.011	-.014	.008

Note. Because of their asymmetry, confidence intervals are noted in ranges.

More important in assessing the validity of a screening measure is the sensitivity and specificity of the test. The sensitivity of a screening test in this context, is the probability that an inmate who needs mental health services will have a positive screening result. A screening measure with a high sensitivity will have few false negatives. Screening tests should normally be designed to be sensitive. That is, a wide net should be cast to catch all of those who are suspected of requiring mental health services, thereby erring on the side of over referral. Low sensitivity occurs when there are a high number of false negatives, individuals who are deprived of (or delayed in getting) treatment. As seen in Table 28 and Table 29 sensitivity values ranged by screening measure, and to a lesser extent by definition of mental disorder.

The specificity of the measure is also an important characteristic to consider when evaluating a screening tool. The specificity of a screening test is the probability that an inmate who does not need mental health services will have a negative result. A test with a high specificity will have few false positives. False positives can tax limited resources because individuals who do not require services are nonetheless sent for costly and timely

secondary assessments. As was the case with sensitivity, specificity ranged by screening

measures and to a lesser extent, by definition.

Positive predictive values and negative predictive values are affected by the base

rate of the disease and as such have more limited utility in assessing the validity of a

screening instrument. As expected, the positive predictive values for the BJMHS and

JSAT increase as the definition of mental disorder increases. Similarly, the negative

predictive values decrease as the definition of mental disorder broadens.

Table 28. *Measures of Diagnostic Efficiency for the BJMHS*

	Narrow		Moderate		Broad		Concurrent	
		(±95%CI)		(±95%CI)		(±95%CI)		(±95%CI)
Sensitivity	.667	(±.090)	.667	(±.090)	.676	(±.089)	.655	(±.090)
Specificity	.585	(±.094)	.605	(±.093)	.638	(±.092)	.597	(±.093)
Positive Predictive Value	.320	(±.089)	.400	(±.093)	.500	(±.095)	.380	(±.092)
Negative Predictive Value	.857	(±.067)	.821	(±.073)	.786	(±.078)	.821	(±.073)
% Agreement	.604	(±.093)	.623	(±.092)	.651	(±.091)	.613	(±.093)

Table 29. *Measures of Diagnostic Efficiency for the JSAT*

	Narrow		Moderate		Broad		Concurrent	
		(±95%CI)		(±95%CI)		(±95%CI)		(±95%CI)
Sensitivity	.500	(±.095)	.400	(±.093)	.432	(±.094)	.379	(±.092)
Specificity	.793	(±.077)	.776	(±.079)	.812	(±.074)	.766	(±.081)
Positive Predictive Value	.414	(±.094)	.414	(±.094)	.552	(±.095)	.379	(±.092)
Negative Predictive Value	.844	(±.069)	.766	(±.081)	.727	(±.085)	.766	(±.081)
% Agreement	.726	(±.085)	.670	(±.090)	.679	(±.089)	.660	(±.090)

Figures 1 through 4 show the sensitivity and 1-specificity coordinates (on the

traditional ROC Curve space) for both screening measures for each definition of mental

disorder. As can be seen, the screening measures did not perform exceptionally well

under any of the definitions of mental disorder.

Figure 1. *ROC Coordinates for Narrow Definition*
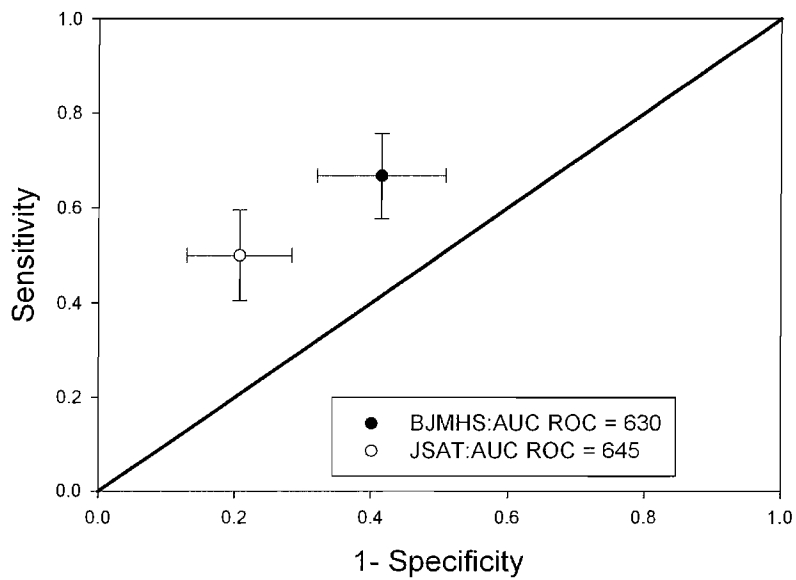
Note. Error bars represent 95% Confidence Intervals.

Figure 2. *ROC Coordinates for Moderate Definition*
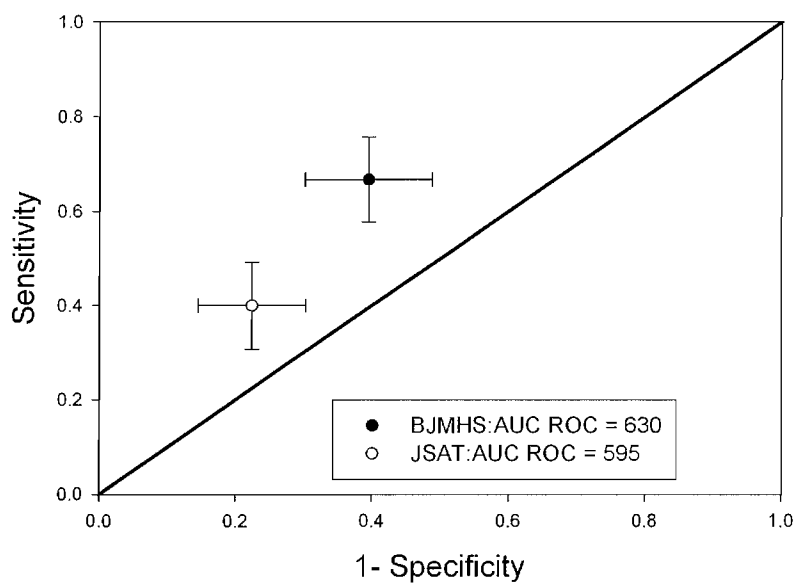
Note. Error bars represent 95% Confidence Intervals.

Figure 3. *ROC Coordinates for Broad Definition*
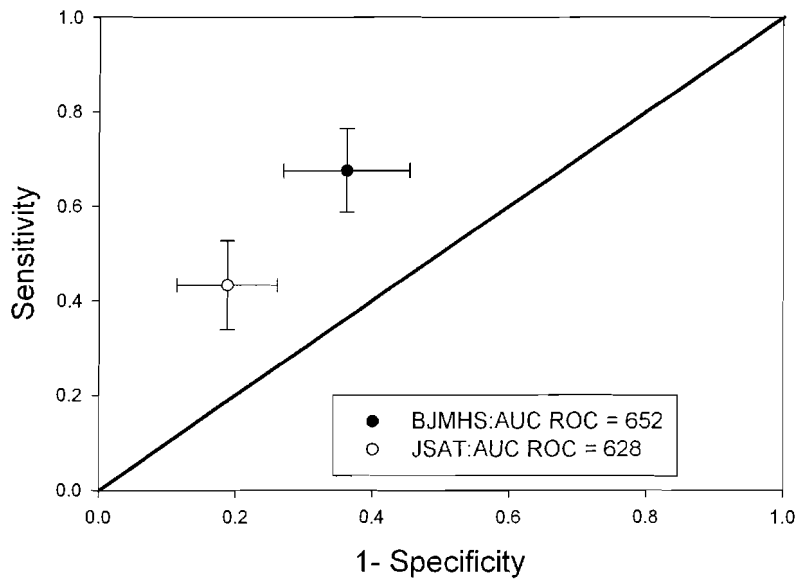
Note. Error bars represent 95% Confidence Intervals.

Figure 4. *ROC Coordinates for Concurrent Definition*
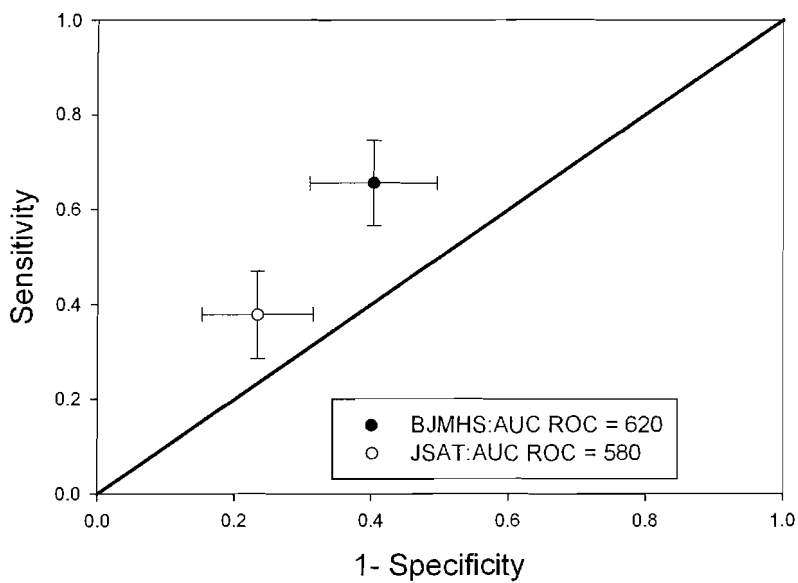
Note. Error bars represent 95% Confidence Intervals.

In each of the following subsections, the association between screening referrals and SCID diagnoses is more closely examined by definition.

Serious Mental Disorders (Narrow)

The outcomes of the screening instruments and the SCID interview are presented in Table 30 for the narrow definition of mental disorder. The sensitivity of the screening measures in identifying individuals who had serious mental disorders was relatively low. The sensitivity of the JSAT (.500 ±.095) suggests that approximately half of those with a serious mental disorder were not referred to the mental health program for a secondary assessment. The BJMHS had a somewhat higher sensitivity rate (.667 ±.090), but its specificity rate was low (.585 ±.094).

Table 30. *Screening Referrals and Mental Disorder (Narrow)*

		No Mental Disorder	Mental Disorder
BJMHS Referral	No	48 (45.3%)	**8 (7.5%)**
	Yes	34 (32.1%)	16 (15.1%)
JSAT Referral	No	65 (61.3%)	**12 (11.3%)**
	Yes	17 (16.0%)	12 (11.3%)

Note. False negatives are bolded.

There is no doubt that jail mental health screening programs should identify those within the narrow definition of mental disorder. The narrow definition consists of the Bipolar disorders, Major Depressive Disorder, Major Depressive Disorder Not Otherwise Specified and Disorders characterized by thought disorders and psychoses (e.g., schizophrenia).The characteristics of the false negatives where examined for both the BJMHS and the JSAT.

BJMHS False Negatives

Five of the eight BJMHS false negatives were diagnosed with Major Depressive Disorder, one was diagnosed with Schizophreniform and one was diagnosed with both Schizophrenia and Major Depressive Disorder. Seven of the eight false negatives endorsed no items on the BJMHS. One individual endorsed item 1.

Six of the eight false negatives were also false negatives with the JSAT. Examining data collected during the JSAT interview for the two additional BJMHS false negatives, one had a modified BPRS-E total score of 11 and was referred for "monitor/reassess mental status." The second false negative had a modified BPRS-E total score of 4 and was referred for "evaluate for counselling/provide support".

JSAT False Negatives

Six of the twelve JSAT false negatives were diagnosed with a Psychotic Disorder, five with Major Depressive Disorder and one with Bipolar Disorder.

When examining data gathered during the JSAT interview, five individuals self-reported a history of mental health treatment including one who also reported an inpatient hospital stay. Two individuals reported having taken psychotropic medications in the past, including one who reported doing so in the last month (the same individual who reported an inpatient hospital stay).

The mental health screeners noted possible mental health issues for 3 of the false negatives including one suggesting "bipolar disorder that was currently stable." Similarly, mental health symptoms were endorsed on the BPRS-E for 6 of the false negatives. Total

scores ranged from 0 – 6 and mean BPRS scores for the individual items was 1.42 (*SD* = 2.11). In addition, one MDO placement recommendation was made for this group.

Four of the six JSAT false negatives that were identified by the BJMHS were referred by the BJMHS as a result of two "yes" to questions 1 – 6, one was referred as a result of a "yes" to question 7 and one was referred as a result of a "yes" to question 8.

"Moderate" Mental Disorders

The moderate definition of mental disorder increased the number of those with diagnoses of mental disorder from 24 to 30, as seen in Table 31. All six individuals were individuals who were diagnosed with substance induced mood disorder. Not surprisingly, all six also had a substance abuse/dependence disorder. The BJMHS incorrectly classified two of the six while the JSAT incorrectly classified all six.

The sensitivity (.667 ±.090) and specificity (.605 ±.093) of the BJMHS with respect to the moderate definition of mental disorder were nearly unchanged from their respective values with the narrow definition of mental disorder. Similarly, the JSAT's specificity (.776 ±.079) with the moderate definition was very similar to the narrow definition. However, the JSAT's sensitivity (.400 ±.093) was somewhat lower than in the narrow definition.

Table 31. *Screening Referrals and Mental Disorder (Moderate)*

		No Mental Disorder	Mental Disorder
BJMHS Referral	No	46 (43.4%)	**10 (9.4%)**
	Yes	30 (28.3%)	20 (18.9%)
JSAT Referral	No	59 (55.7%)	**18 (17.0%)**
	Yes	17 (16.0%)	12 (11.3%)

Note. False negatives are bolded.

JSAT False Negatives

As a result of the JSAT interview, the mental health screeners noted possible mental health issues in five of the six false negative individuals. In three cases, "situational stress/depression" was noted, in one case "possible anxiety/mood disorder" was noted and, in another case, "history of psychotic/bipolar disorder, currently stable" was noted. However virtually no BPRS-E items had been endorsed. In only one of the six was any item endorsed (possible anxiety). No placement recommendations were made for any of the six.

The self-reported mental health treatment history of the six false positives as reported during the JSAT was examined. One admitted to having undergone a court ordered assessment and another reported the use of psychotropic medications at some point in the past.

All six admitted to drug/alcohol abuse during the JSAT interview. Two admitted to cocaine abuse, two admitted to abusing methamphetamines, one admitted abusing alcohol and one admitted to abusing "other drugs". In addition, two of the six reported using marijuana and one reported currently participating in a methadone program.

BJMHS False Negatives

The two BJMHS false negatives endorsed no BJMHS items. In addition, during

the JSAT interview the mental health screeners reported no symptoms on the BPRS-E

and made no mention of potential mental health issues in the management

recommendations section.

"Broad" Mental Disorders

The broad definition of mental disorder added another 7 individuals to the

category of those mentally disordered (see Table Table 32). Three of the individuals met

criteria for a single disorder while four met criteria for two or more disorders (not

including substance use disorders). Of those who met criteria for multiple disorders, two

had dysthymia in combination with an anxiety disorder and two had multiple anxiety

disorders.

Table 32. *Screening Referrals and Mental Disorder (Broad)*

		No Mental Disorder	Mental Disorder
BJMHS Referral	No	44 (41.5%)	**12 (11.3%)**
	Yes	25 (23.6%)	25 (23.6%)
JSAT Referral	No	56 (52.8%)	**21 (19.8%)**
	Yes	13 (12.26%)	16 (15.1%)

Note. False negatives as bolded.

The sensitivity and specificity of the BJMHS (.676 ±.089 and .638 ±.092,

respectively) and the JSAT (.432 ±.094; .812 ±.074) remained fairly constant with the

broad definition. The JSAT missed three of the seven new diagnoses. The BJMHS

missed two of the three missed by the JSAT.

False Negatives

All three individuals missed by the JSAT had dysthymia. Two had dysthymia and one had dysthymia and PTSD (this latter one was also missed by the BJMHS). For this group of inmates the mental health screeners endorsed no Mental Health Issues or Placement Recommendations in the Management Recommendations section of the JSAT. The Depression item was the only item endorsed in the Mental Status subsection (i.e., the BPRS-E) and only for one of the false negatives.

Concurrent Disorders

The Concurrent definition included all those diagnosed with both a mental disorder (broadly defined) and a substance use disorder. As indicated in Table 33, very few individuals had a broad mental disorder without a concomitant substance use disorder.

Table 33. *Screening Referrals and Concurrent Mental Disorders*

		No Concurrent Mental Disorders	Concurrent Mental Disorders
BJMHS Referral	No	46	**10**
	Yes	31	19
JSAT Referral	No	59	**18**
	Yes	18	11

Note. False negatives are bolded.

The BJMHS' sensitivity (.655 ±.090) and specificity (.597 ±.093) continued to remain stable even with this narrow definition of mental disorder. The JSAT's sensitivity (.379 ±.092) was lower than in the other definitions suggesting that more than half of

those who met criteria for both a substance use disorder and a broadly defined mental disorder where not referred.

False Negatives

Despite not referring the 18 false negatives with the JSAT, the mental health screeners noted a number of mental health symptoms on the JSAT Coding Form as a result of their JSAT evaluation. More specifically, they noted Mental Health Issues in 11 of the cases including 2 "history of psychotic/bipolar disorder – current stable". In addition, in eight cases (4 of which did not have Mental Health Issues), the mental health screeners endorsed a number of symptoms in the Mental Status subsection. Two of these had *possible* hallucinations and a Mental Status (i.e., BPRS-E) total score of more than 4. All 18 had admitted to currently abusing alcohol, cocaine, heroin and/or methamphetamines during the JSAT interview. In addition, 5 were on methadone maintenance.

SCID and BJMHS Items

Given the high referral rate with the BJMHS, the sensitivity and specificity of individual BJMHS items as they correspond with current SCID diagnoses were examined. Given the purpose of the BJMHS, a tool aimed at identifying only serious mental disorder, the BJMHS items were examined against the narrow definition of mental disorder. As indicated in Table 34 the sensitivity of the items ranged from a low of .208 for item 1 (±.077) and 7 (±.077) to a high of .667 (±.090) for item 3. The sensitivity and specificity of the two referral rules (two "yes" to first six questions or 1 "yes" to question 7 or 8) were also examined as seen in Table 35. The referral rule related

to the first six questions had much better measures of diagnostic efficiency that the referral rule related to the last two questions.

Table 34. *BJMHS items and Serious Mental Disorder (Narrow)*

Item	Sensitivity (±95% CI)	Specificity (±95% CI)
1	.208 (±077)	.976 (±.029)
2	.292 (±.087)	.988 (±.021)
3	.667 (±.090)	.646 (±.091)
4	.292 (±.087)	.817 (±.074)
5	.208 (±.077)	.854 (±.067)
6	.375 (±.092)	.768 (±.080)
7	.208 (±.077)	.840 (±.070)
8	.292 (±.087)	.873 (±.063)

Table 35. *BJMHS Referral Rules and Serious Mental Disorder (Narrow)*

Referral Rule	Sensitivity (±95%CI)	Specificity (±95%CI)
2 "yes" on items 1- 6	.625 (±092)	.707 (±.087)
1 "yes" on item 7 or 8	.292 (±.087)	.780 (±.079)

SCID and JSAT Sections

As described in the JSAT section above, there was not a one-to-one correspondence with the identification of Mental Health Issues, Placement Recommendations and Referrals. The sensitivity and specificity of the subsections as they relate to serious mental disorder (narrow definition) are indicated in Table 36.

74

Mental Health Status total scores had the highest sensitivity (.636 ±.092) while Risk

Ratings had the lowest (.042 ±.038).

Table 36. *JSAT Subsections and Serious Mental Disorder (Narrow)*

Item	Sensitivity (±95%CI)	Specificity (±95%CI)
Mental Health Issues	.636 (±.092)	.580 (±.094)
Placement Recommendations	.273 (±.085)	.855 (±.067)
Risk Ratings	.042 (±.038)	.902 (±.056)
Mental Health Status (i.e., BPRS-E) Total ≥ 4	.292 (±.087)	.939 (±.046)

Since some placement recommendations would place the inmates in a housing

unit that was monitored by health care staff at North Fraser, we modified the referral

criterion in Table 29 by including as a "referral" individuals who were placed in an MDO

unit, segregation or under suicide watch. Since placement recommendations are just that,

recommendations, the screeners are not assured that the individual will be housed

according to their recommendation. Nonetheless, in many cases these individuals would

appropriately come to the attention of health care staff. Including these placement

recommendations in the category of "referred" made very little difference in sensitivity

and specificity across definitions.

Table 37. *Diagnostic Efficiency for JSAT with Modified Referral Category*

	Narrow		Moderate		Broad		Concurrent	
		(±95%CI)		(±95%CI)		(±95%CI)		(±95%CI)
Sensitivity	.542	(±.095)	.433	(±.094)	.459	(±.095)	.414	(±.094)
Specificity	.768	(±.080)	.750	(±.082)	.783	(±.079)	.740	(±.083)
Positive Predictive Value	.406	(±.093)	.406	(±.093)	.531	(±.095)	.375	(±.092)
Negative Predictive Value	.851	(±.068)	.770	(±.080)	.730	(±.085)	.770	(±.080)
% Agreement	.717	(±.086)	.660	(±.090)	.670	(±.090)	.651	(±.091)

To examine whether creating automatic referral rules based on the JSAT Mental Status and Management Recommendations subsections would lead to better agreement with the SCID, we created a mechanical version of the JSAT. This version was created not as a new tool but rather to examine whether the information collected by the mental health screeners had some utility in coming to a decision to refer an inmate. All inmates for whom a Mental Health Issue was noted, a Placement Recommendation was made or who obtained a BPRS-E Total score of 4 or greater, were automatically and mechanically referred. As seen in

76

Table 38, the mechanical version of the JSAT performed better than the original JSAT

suggesting that the information gathered during the JSAT interview is useful but that the

screeners are not making full use of the information when making their referrals. This

version of the JSAT had sensitivity levels similar to those of the BJMHS and maintained

its better specificity.

Table 38. *Diagnostic Efficiency of "Mechanical" Version of JSAT*

	Narrow		Moderate		Broad		Concurrent	
		(±95%CI)		(±95%CI)		(±95%CI)		(±95%CI)
Sensitivity	.667	(±.090)	.667	(±.090)	.703	(±.087)	.724	(±.085)
Specificity	.855	(±.067)	.671	(±.089)	.725	(±.085)	.688	(±.088)
Positive Predictive Value	.640	(±.091)	.444	(±.095)	.578	(±.094)	.467	(±.095)
Negative Predictive Value	.869	(±.064)	.836	(±.070)	.820	(±.073)	.869	(±.064)
% Agreement	.651	(±.091)	.670	(±.090)	.717	(±.086)	.698	(±.087)

DISCUSSION

Referral Rates

An effective screening program should refer approximately 25 to 33% of inmates (Dvoskin, Stanley, & Brodsky, 2007). Against this benchmark, the BJMHS referred too many inmates while the JSAT referred too few.

Brief Jail Mental Health Screen

We did not replicate the referral rates found in either of the BJMHS validation studies. In their original study (Steadman et al., 2005), 11% of detainees were referred for a further mental health assessment while in their revalidation study (Steadman et al., 2007), the 8-item BJMHS had a referral rate of 16%. Item level data are not available in either of the BJMHS studies and therefore it is impossible to determine which items may have contributed to the increased referrals in this study. However item 7 (current psychotropic medications) or item 8 (previous psychiatric hospitalization) alone would have led to a 14.6% ($\pm$1.86%) and 16.9% ($\pm$1.96%) referral rate, respectively, in this study. One hypothesis is that Canadian inmates have greater access to health care including hospitalization and medications, thereby increasing the number of those who will endorse these items. For example, in one recent study, about one- third of US inmates reported that they had not gone to a medical provider during the past 12 months when they needed to because of the cost (Conklin, Lincoln, & Tuthill, 2000). However, even with the removal of these two items, the BJMHS referral rate would still have been

higher than in the original studies (31.4%). Another hypothesis is that a larger proportion

of inmates in this study were abusing alcohol/drugs leading them to endorse item 3

(lost/gained weight) at an increased rate as a result of their substance abuse, not as a

result of depression. Recall that item 3 had the highest endorsement rate (34.7±2.54%) of

all the BJMHS items. The rates of substance use disorders in the sample of inmates

included in the BJMHS validation studies were not provided and as a result a comparison

is not possible. However, even if this were the case, this item alone would not explain the

increased referral rate. If it is removed, the referral rate drops only to 31.6% (see Table

14).

One factor that may have impacted referrals rates is the fact that all of screeners in

this study were females. Steadman and his colleagues found that female screeners

referred a significantly higher proportion of individuals than male screeners. Research on

the role of gender on self-disclosure has found that men tend to disclose more personal

information to women than to other men (Aries, 1996, Derlega, Metts, Petronio, &

Margulis, 1993; Dindia & Allen, 1992).

In one study examining the effects of interviewer gender in mental health

interviews in the general population, interviewer gender was significantly related to

respondents' reports of psychiatric symptoms (Pollner, 1998). More specifically, both

male and female respondents reported more symptoms of depression, substance abuse,

and conduct disorders than respondents interviewed by men. The impact of interviewer

gender was significantly greater among male than female respondents suggesting that

men were more influenced by gender than women. The author suggested two factors that

may jointly have contributed to these results. First, women may have been perceived as

more interested and less critical of respondents revelations consistent with the gender stereotype of the nurturing female. Second, women may have created interactions more conducive to disclosure (in contrast to more task-oriented styles).

One other important difference between this study and Steadman et al.'s studies that might partially explain the difference in referral rates is that this study utilized mental health screeners with significant mental health training. It may be that skilled mental health screeners are more likely to elicit endorsements to the 8 BJMHS items for some of the same reasons females elicit more self-disclosure. The very foundation of mental health training in assessment and evaluation is the building of a trust relationship free from judgment. Similarly, inmates may have had increased expectations of privacy and therefore were more apt to self-disclose.

It is not clear whether the increased self-disclosure represents increased accuracy on the part of the respondent or whether other factors are at play. Not only have response biases been largely neglected in mental health research (Rogler, Mroczek, Fellows, & Loftus, 2001) but response biases in correctional settings may be unique. As has been suggested by others (e.g., Fisher, Packer, Simon, & Smith, 2000), inmates may believe that significant benefits will accrue from appearing mentally ill, including special treatment within the facility, obtaining prescription medications, diversion out of jail and/or transfer to psychiatric facilities.

The BJMHS' 45% referral rate is even higher when one considers that the BJMHS does not screen for suicide. In the original validation studies, the Suicide Prevention Screening Guidelines (SPSG) was administered in addition to the BJMHS (Steadman et al., 2005, 2007). The SPSG led to a "small number" of referrals that were

not also referrals on the BJMHS (Steadman et al., 2005, p. 819). In this study, all those identified as a suicide risk by the JSAT were referred by the BJMHS.

The variability in referral rates across these three studies (i.e., Steadman et al., 2005, 2007 and this one) is particularly interesting considering the small confidence intervals generated by the large sample sizes. It appears that the BJMHS is sensitive to the administration setting and to individual differences in screeners, resulting in vastly different referral rates under different screening conditions and with different screeners. The individual differences in screening rates for different screeners appears not to be limited to gender. In this study, despite an all-female screening staff, 2 of the screeners differed significantly from the others. In fact, the range between screeners was very large (23.2% - 62.8%). It is unknown how the referral rules were selected and whether the selection was based in part on inmates' endorsement rates under specific conditions or whether they were selected based on the accurate endorsement of the items. It may be that different referral rules are needed under different screening conditions.

Jail Screening Assessment Tool

Contrary to our hypothesis, the JSAT referral rate was lower than the BJMHS referral rate. Moreover, the JSAT referral rate in this study was considerably lower than those found in other studies. Previous research has found referral rates between 27.1% for male detainees (Welsh, Gagnon, & Roesch, 2007) and 37.1% for female detainees (Nicholls et al., 2004).

A number of factors may have influenced the mental health screeners decisions to (not) refer individuals for a further assessment. As was described in the Results section,

there was not a one-to-one correspondence between the identification of Mental Health Issues or Placement Recommendations and Referrals. In many instances, screeners identified potential mental health issues and made placement recommendations but did not make referrals. One possible explanation is that the mental health screeners may not have understood how to take the information collected during the JSAT interview to make referral decisions. That is, the screeners may not have known under which conditions individuals should have been referred. While this may differ across settings, there are no doubt some strong guidelines that should be put in place with respect to which individuals should be referred. For example, there are good reasons to suggest that any individual with symptoms of thought disorder or with a currently stable psychotic illness should be referred. Despite the fact that an individual may currently be stable, restricted access to medications, the stress and uncertainty of their charges and the characteristics of incarceration can quickly work together to destabilize them. Moreover, screening interviews are not an ideal place to determine with any precision the degree to which a seriously mentally ill individual is currently stable. As such, in many cases where mental health screeners indicated the presence of a Mental Health Issue, sound correctional policy and professional judgement should have dictated that the screener also refer the individual.

Another potential factor which may have impacted referral rates is anchoring. Research suggests that decision makers can be largely unaware of the important impact that reference points have on their judgements (Huber, Northcraft, & Neale, 1990; Northcraft & Neale, 1987). For example, pressure from correctional staff or mental health care staff to keep the number of referrals to a minimum may have inadvertently led to

fewer referrals. In anchoring, the decision maker unknowingly considers the context (i.e., in this case that low referrals are preferred), and is influenced by the context in making their decision. While this type of pressure was not examined in this study, anecdotal evidence from other mental health screeners (in different jail settings) are consistent with subtle, yet persistent, pressures to keep referrals low.

Measurement drift may also be responsible for the low referral rate. When mental health instruments require clinical judgement, ongoing supervision and training is needed to prevent measurement drift (Ventura, Green, Shaner, & Liberman, 1993).

In fact, a significant difference between the mental health screening conditions in this study and the other two studies (Nicholls et al., 2004; Tien et al., 2003) is the quality of the supervision of the mental health screeners. In the earlier two studies, as part of the normal operating procedures within the institutions, mental health screeners participated in both peer and mentor supervision. At monthly meetings, mental health screeners would examine recent referral decisions and discuss possible concerns with the supervising registered psychologist. These regular supervision meetings allowed the supervising psychologist to discuss low/high referral rates, missed referrals and to review mental health screening practices. Moreover, the supervising psychologist served as a direct link to correctional management allowing for efficient communications with respect to policies and practices. While the mental health screening program at North Fraser Pretrial is under the supervision of a registered psychologist, mental health screeners rarely meet with their supervisor or each other for the purposes of supervision. Moreover, feedback on referral rates and the appropriateness of referrals are not provided to screeners.

Whatever the cause of the screeners low referral rates in this study, it appears that the screeners structured professional judgement required some restructuring.

It is interesting to note that in the mechanical version of the JSAT, created by automatically referring those with a BPRS-E total scores greater than 3, those with an identified Mental Health Issue and/or those for whom a placement recommendation was made, the referral rate was slightly elevated (36.8%) but much closer to the appropriate range.

Predictive Validity

There is no gold standard for mental health screens with respect to acceptable levels of sensitivity or specificity (Steadman et al., 2007). Acceptable rates will depend on the policies and practices in place within individual institutional settings. However, sensitivity is arguably the most important characteristic of a screening test. A test with high sensitivity has few false negatives. Despite the importance of a measure's sensitivity, specificity should not be ignored. Sensitive tests that are not also specific can yield an unacceptably high number of false positives leading to valuable resources being spent providing secondary assessments to those who do not require them.

Despite a significant difference in referral rates, it is interesting to note that the BJMHS and JSAT had very similar receiver operator characteristics area under the curve (ROC AUC) values within definitions. This is a result of the BJMHS' comparatively better sensitivity and the JSAT's comparatively better specificity.

Brief Jail Mental Health Screen

Despite the much higher referral rates in this study, the BJMHS had sensitivity rates across definitions (low-mid .600s) that were similar to those found in the BJMHS validation studies (Steadman et al., 2005; 2007). Notwithstanding the instruments stated purpose, to identify those who are seriously mentally disordered (i.e., Bipolar Disorders, Major Depressive Disorder and Disorders involving psychoses), and contrary to our hypothesis, the BJMHS performed equally well in identifying those with moderate or broad mental disorders.

No doubt as a result of the much higher referral rate, the BJMHS' specificity was lower across all definitions than in the original validation studies. The specificity, ranging from .585 for the Narrow to .638 for the Broad definition of mental disorder, would likely be unacceptably high for most settings. The lack of specificity suggests that an inordinate amount of resources would be consumed for secondary assessments on inmates who did not need them.

Jail Screening Assessment Tool

The sensitivity of the JSAT was unacceptably low across all definitions of mental disorder. Conversely, the specificity was excellent across all definitions of mental disorder. Both are, no doubt, a reflection of the low referral rate.

As explained in a previous section, a mechanical version of the JSAT was created using dichotomized information from the Mental Status and Management Recommendations subsections of the JSAT. Interestingly, the mechanical version of the JSAT preformed much better than the actual JSAT and to a certain extent better than the BJMHS. It had good sensitivity and specificity across all definitions of mental disorder.

This lends support to the idea that mental health screeners were gathering information appropriate to the determination of referrals but were not adequately using this information when deciding when to make referrals. However, as discussed in the limitations section below, one factor which must be considered in examining the sensitivity and specificity of the JSAT in particular, is the imperfect gold standard used in this study.

Beyond Mental Health Screening

Screening programs are in place not simply to identify inmates in need of mental health services but rather to facilitate the treatment of those who need it. In some cases individuals who require treatment will not be identified by mental health screening. As such, mental health screening should merely be one point of entry to a mental health program. The incarceration experience including isolation, violence and/or victimization may lead otherwise asymptomatic individuals to require mental health services. Similarly, a change in medical regiments, noncompliance to medication or withdrawal from medications may bring on new mental health problems. Self-referral appears to be an important and valid way for individuals in need to access mental health services (Diamond, Magaletta, Jo, Harzke, & Baxter, 2008). Consequently, correctional institutions should have in place policies and procedures, which are communicated to inmates, that allow for self-referral to mental health services.

Correctional staff may also have an important role in identifying individuals requiring mental health treatment (Dvoskin & Spiers, 2004). Research suggests that correctional officers who work closely with inmates (e.g., on living units) can recognize hidden psychiatric morbidity and should be encouraged to refer inmates whom they

consider "odd, strange, or behaviourally disturbed" to the mental health program (p. 853, Birmingham, 1999).

Treatment of Mentally Ill Inmates

Consistent with previous research, results suggested that most inmates had significant mental health needs. Many reported symptoms of depression (21.4%) or anxiety (17%). Many more were currently abusing drugs or alcohol (44.7%). Nearly one-tenth had taken prescription medications for psychiatric or emotional difficulties within the last month. As such, jails present a significant public health opportunity to treat an important number of mentally disordered individuals. In fact, many have argued that the criminal justice system encounters more individuals with mental illness than the civil psychiatric system (Ogloff, 2006; Perez, Leifman, & Estrada, 2003). Despite the pervasiveness of mental health problems and the unique public health opportunity it provides, jails "have traditionally provided little in the way of mental health services" (p.92, Roesch et al., 1998).

Even with good mental health screening strategies, the number of individuals with mental illness in the criminal justice system will continue to remain disproportionately high unless comprehensive and well-integrated mental health programs and policies are employed both in the criminal justice system and other community mental health agencies. Despite a recognition by correctional administrators, front line staff, and scholars of this need, few services exist to help identify individuals with mental illness from entering (and cycling through) the criminal justice system. At minimum, in addition to systematic mental health screening, jails should provide adequate treatment for acute mental health symptoms and appropriate discharge planning (Rice & Harris, 1997;

Steadman et al., 1989). Despite the constitutional requirement to provide health services to mentally disordered inmates, jails mental health services continue to be inadequate (HRW, 2003: Ogloff, 2002).

Providing effective mental health services in jails and remand centres is difficult given the short period of time most inmates remain in these settings (Goldstein, Felizardo, Conklin, & Schissel, 2006). As such, research and practice have focussed their efforts on diversion from the criminal justice system as well as release planning and community reintegration.

A number of mentally ill individuals who find themselves within the criminal justice system, should be appropriately diverted to community mental health programs and services. Recent promising diversion strategies include mental health courts or drug courts (Earthrowl, O'Grady & Birmingham, 2003). These programs divert individuals with substance use disorders and other mental disorders away from the traditional court system to community based treatment programs (Greenberg & Nielsen, 2002). While a number of formal diversion strategies have been developed in recent years, diversion has been occurring on a less formal basis for quite some time (Borum, Deane, Steadman, & Morrissey, 1998; Lamb, Weinberger, & DeCuir, 2002, Morabito, 2007).

Recent evidence suggests that diversion strategies may be particularly important given that individuals with mental illness may adapt coping strategies and patterns of behaviours while incarcerated that may be adaptive in that environment but that subsequently negatively impacts mental health treatment in the community (Carr, Rotter, Steinbacher, 2006; Rotter, McQuistion, Broner, Steinbacher, & Glaze, 2005).

89

Despite the importance of diversion programs, they have encountered formidable challenges. In order for diversion to be effective, one must have a place to which to divert the individual. That is, the existence of well-integrated, well-defined and well-funded mental health programs and policies must be in place for diversion strategies to be effective. In many ways, diversion is similar to deinstitutionalization in the civil psychiatric context. The goals of diversion, like the goals of deinstitutionalization are laudable, however in order for these strategies to be effective adequate community services must exist.

While adequate community mental health services are necessary for the effective treatment and reintegration of mentally disordered inmates into their communities, they are not sufficient. Studies show that the availability of community-based mental health services by themselves do not affect the prevalence of mental illness in jails (Fisher, Packer, Simon, & Smith, 2000). Community services can only be beneficial if individuals are connected to those services.

Release planning and post-incarceration programs are aimed at reintegrating individuals leaving the criminal justice system into their community (Walff, Plemmons, Veysey, & Brandli, 2002). Without proper discharge and transition planning, mentally disordered inmates can find themselves facing the same crises and challenges that led to their initial behaviours and arrest. The lack of transition planning can have devastating outcomes including "an increased incidence of psychiatric symptoms, hospitalization, relapse to substance abuse, suicide, homeless, and rearrest" (Osher, Steadman, & Barr, 2002, p.3). Recent evidence suggests that intensive case management strategies aimed at

90

connecting individuals with community services on an ongoing basis can reduce the rate of recidivism for mentally ill offenders (Dvoskin & Steadman, 1994).

Perhaps the most important role jails can play in mental health treatment is in the area of continuity of care (Veysey et al., 1997). As Steadman (1989) has suggested, jails should not be considered self-contained and closed systems. Rather jails should be considered a part of the larger community. In this context, effective jails develop interagency linkages and interorganizational relationships and, information is shared between agencies and organizations. Mental health screening at the pretrial stage could play an important role and provide an important link in continuity of care for those who are mentally disordered.

Limitations

One important limitation of this study is the use of DSM diagnoses as the gold standard: There is not a one-to-one correspondence between those who meet mental disorder criteria, and those who require mental health treatment in jails or prisons. Some who meet diagnostic criteria may not require correctional mental health services and conversely, those who do not meet diagnostic criteria may be in acute crises and require emergency care (e.g., suicidal ideation and intent). This is an important consideration in assessing the predictive validity of any screening measure in this context but may be particularly relevant in assessing the predictive validity of the JSAT. With the JSAT, screeners use their professional judgement in deciding whether to refer an inmate. Given a particular set of circumstances and in consultation with the inmate, screeners may decide not to refer an inmate who they believe may meet diagnostic criteria for a mental disorder but who does not require (immediate) mental health services. Policies and

91

practices, including the availability of health care resources, could also factor in the decision to refer. That is, given a mental health program under strain, screeners may opt to refer only those who they believe are in most urgent need recognizing the futility of referring more inmates that the system can handle. Whether it is feasible to come to such refined decisions in a screening situation is an empirical question that requires further testing. The particularly low sensitivity of the JSAT with the Concurrent definition suggests that screeners may dismiss psychiatric symptoms as merely alcohol/drug related in inmates who report substance abuse when the symptoms may in fact be related to another mental disorder.

In an interesting study, Corrado and his colleagues (2000) examined the agreement among six different definitions of mental disorder including narrow and wide definitions based on symptoms, syndromes and disorders. They found moderate agreement for symptom and syndrome based definitions which yielded similar estimates of prevalence and had similar patterns of association with institutional security and mental health problems. However, broad disorder based definitions were only weakly associated with institutional security and mental health problems and yielded higher prevalence rates. The disorder based definition had low agreement with the other definitions. The results of this study raise important questions with respect to mental health "need", not all definitions will yield similar associations with important institutional variables such as institutional adjustment. As was suggested by Hart et al. (1993) "research is needed to determine whether the treatment and management of mental health problems in jails is best conceptualized in terms of symptoms or disorders (and which symptoms or disorders)".

In addition to using diagnostic measures as the "gold standard" in assessing predictive validity, measures of symptoms and symptom severity should also be considered. The BPRS may be a particularly useful as it has an established factor structure and population norms (Brown, 1996). Measures of self-rated need, such as the Camberwell Assessment of Need (Slade, Phelan, Thornicroft, & Parkman, 1995) may also serve as appropriate "gold standards". Finally, measures of clinical impairment such as the GAF or the Composite International Diagnostic Interview (WHO, 1990) would also be useful. There is considerable need to consider multiple outcome measures within a single study in order to allow for the investigation of the relationship between these various constructs (i.e., diagnoses, symptoms, need, and impairment). How to define the "need" for mental health services is an important question which concerns not only correctional health care but the greater mental health community (Gunn, Maden, & Swinton, 1991; Magaletta et al., 2007).

Another limitation is that no reliability data were collected for either the SCID, the JSAT or the BJMHS. This is particularly problematic since very limited data exists on the inter-rater reliability of the JSAT and no data has examined the inter-rater reliability of the BJMHS. There are a number of challenges relating to collecting inter-rater reliability data in a clinical correctional setting.

Inter-rater reliability is usually measured by comparing the diagnostic ratings for an interviewer and one or more observers (joint-interview design) or for interviewers who have completed independent interviews at two different times (test-retest design). There were a number of challenges related to trying to implement a test-retest inter-rater reliability design for the SCID. Not only are pretrial detainees incarcerated for a very

short period of time, during their short incarceration they often leave the institution to attend court thus making them largely unavailable. Moreover, it was felt by health care and correctional staff that it would be highly unlikely that inmates would agree to participate to a second SCID interview.

The joint-interview design was also perceived as impractical. In order to get accurate estimates of inter-rater reliability, the joint-interview design requires that skip instructions be ignored. In administering the SCID, interviewers follow very specific administration paths depending on the response a participant gives to an individual question. For example, if a participant denies a symptom without which a particular diagnosis is impossible, the interviewer skips the remainder of the questions pertaining to that diagnosis and moves on to another potential diagnostic category. Given a specific set of participant responses, the SCID administration path is entirely dictated by the instruments detailed skip instructions. While this ensures that only those questions which are relevant to a particular participant's situation are asked, the administration path provides a strong indication of the diagnostic ratings made by an interviewer. That is, in a joint-interview design, inter-rater reliability is greatly inflated by the fact that the observer can largely determine the diagnosis the interviewer is likely to make by examining the administration path. To deal with this issue, interviewers in studies using the joint-interview design should not follow the skip instructions but rather, should ask every question from every diagnostic category to the participant. Given that the average SCID interview lasted approximately 2.5 hours, ignoring skip instructions would likely have increased the SCID administration time to an unacceptable length. The less ideal joint-interview design where skip instructions are not ignored (i.e., the SCID is

94

administered normally) was also rejected as an alternative. While it may have been possible to have observers attend an interview for the purposes of inter-rater reliability, the limited benefit of the joint-interview with skip instructions did not outweigh the ethical (e.g., participant's privacy interests would greatly be reduced by having multiple interviewers) and practical (e.g., severe limitations around space and human resources needed for interviews involving multiple individuals) costs of such a procedure. Nor was it possible to audio/videorecord the interviews given the forensic setting.

Similar concerns impacted the ability to collect inter-rater reliability data for the two screening measures. A long intake process, insufficient space and other administrative concerns made it impossible to implement an inter-rater reliability scheme whereby the inmate could be tested separately with each of the two screening measures by two independent raters. As such, a joint-interview inter-rater reliability scheme was implemented, despite its limitations, but unfortunately as a result of a number of staffing issues, the data were not collected.

Finally another limitation is related to the number of individuals who did not or could not participate in this study. Twenty-six inmates were identified by mental health screeners as incapable of giving informed consent to participate, as a result of substance intoxication or severe disorientation. Similarly, 73 individuals chose not to participate in this study. It is likely that these groups do not represent random attrition, thereby impacting the randomness of the study sample and the generalizability of the study results.

Conclusion

Despite widespread agreement among correctional front line staff, administrators and scholars on the importance of mental health screening, relatively little evidence has examined the validity of current screening practices and tools. This study examined the predictive validity of the BJMHS and JSAT, two vastly different approaches to mental health screening, against four definitions of mental disorder. Results did not replicate earlier findings suggesting that the tools had good sensitivity and specificity. While the BJMHS had good sensitivity, it had inadequate specificity resulting in too many false positives. It also had a referral rate which was much too high. On the other hand, while the JSAT had good specificity, its sensitivity was too low. Further research is needed on both the BJMHS and JSAT before widespread adoption is warranted. In the case of the BJMHS, research is needed to examine the impact of screener and setting characteristics on referral rates and specificity. With respect to the JSAT, a closer examination of the structured professional scheme is needed. While evidence suggests that the mental health screeners were gathering information useful in determining whether a referral was needed, they were not making adequate use of this knowledge in making their referrals. The role of ongoing supervision and training in the validity of the tool should be explored.

Unfortunately, very little empirical research has examined what follows a "positive" screen or self-referral to mental health services. There needs to be a greater emphasis on jail mental health research, including the types of mental health services delivered to inmates, barriers to the delivery and uptake of services and the efficacy of those services (Ax, 2003; Clemenets & McLearen, 2003; Draine & Solomon, 1999;

Morgan, Steffan, Shaw, & Wilson, 2007; Ruddell, 2006). Effective jail mental health

screening is only one step, albeit an important step, in an integrated and comprehensive

mental health system aimed at reducing the "criminalization of the mentally ill".

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