

_____ **Research Report** _____

**An Initial Report on the Results of the
Pilot of the Computerized Mental Health
Intake Screening System (CoMHSS)**

Ce rapport est également disponible en français. Pour en obtenir un exemplaire, veuillez vous adresser à la Direction de la recherche, Service correctionnel du Canada, 340, avenue Laurier Ouest, Ottawa (Ontario) K1A 0P9.

This report is also available in French. Should additional copies be required, they can be obtained from the Research Branch, Correctional Service of Canada, 340 Laurier Ave. West, Ottawa, Ontario K1A 0P9

**An Initial Report on the Results of the Pilot of the Computerized Mental Health Intake
Screening System (CoMHISS)**

Lynn A. Stewart
Correctional Service of Canada

Andrew Harris
Correctional Service of Canada

Geoff Wilton
Correctional Service of Canada

Kyle Archambault
Correctional Service of Canada

Colette Cousineau
Correctional Service of Canada

Steve Varrette
Correctional Service of Canada

&

Jenelle Power
Correctional Service of Canada

Correctional Service of Canada

March 2010

Acknowledgements

The authors would like to thank the following for their contribution to the project and their thoughtful comments on initial drafts of the report: Brian Grant, Sara Wotschell, Kathleen Thibault, Natalie Gabora and Andrea Moser.

Executive Summary

With indications that the rate of mental disorder among federally sentenced offenders is increasing, Correctional Service of Canada (CSC) requires tools that can provide efficient standardised methods for screening of offenders who may require mental health intervention. The large numbers of offenders coming into reception centres over a year makes it attractive to look at an automated method that will allow administrators to compile institutional, regional and national statistics and provide quick and accurate profiles of the offenders who are showing significant symptoms of distress. The Computerized Mental Health Intake Screening System (CoMHISS) combines two self report measures tapping psychological problems, the Brief Symptom Inventory (BSI) and Depression Hopelessness and Suicide Screening Form (DHS), with the Paulhus Deception Scales (PDS).

From February 2008 to April 2009 over 1,300 male offenders incarcerated on a new sentence at the regional reception centres completed the measures. In this study, cut-off scores based on psychiatric patient norms determined that less than 3% of the federal male population would be screened in for further service or evaluation. However, using non patient norms almost 40% of the population would be screened in. Further research is required to establish CSC specific norms and appropriate cut off scores. Preliminary data indicate relative higher rates of psychological symptoms among the Aboriginal specific population, but these differences were not statistically significant. Comparative data on the results of the assessment across regional reception centres demonstrated the highest rates of symptomology in the Atlantic region. A profile of the offenders who completed the assessment is presented and compared to those who refused the assessment or produced invalid results.

Further research is required to confirm the accuracy of the measures in identifying seriously mentally disordered offenders who will require additional services. Future possible developments of the CoMHISS may include incorporation of measures of cognitive deficits and attention deficit disorder and the merging of the mental health assessments with results from the Computerised Assessment of Substance Abuse which will provide estimates of rates of concurrent disorders.

Table of Contents

Acknowledgements	ii
Executive Summary	iii
Table of Contents	iv
List of Tables	v
List of Figures	vi
List of Appendices	vii
Introduction	1
Method	4
Measures	4
Paulhus Deception Scale.....	4
The Depression, Hopelessness and Suicide Screening Form (DHS).....	5
Scoring, interpretation and recommended cut-off scores.....	6
The Brief Symptom Inventory (BSI).....	6
Scoring, interpretation and recommended cut-offs.....	8
Offender Background Information from OMS.....	10
Procedure	11
Participants	11
Results	14
Additional Analyses	29
BSI scores relative to time of assessment.....	29
Overlap of DHS Scores and GSI.....	30
Correlations of BSI and DHS Depression Scale Scores with Markers of Mental Disorder.....	31
Analysis of offenders who refuse the CoMHISS and those producing invalid responses. ...	32
Co-occurrence of substance abuse problems and mental health concerns.....	33
Discussion.....	36
References	39
Appendices	42

List of Tables

Table 1	<i>Demographic Profile of CoMHISS Respondents and Incoming Male Offenders Who Were Not Assessed on CoMHISS</i>	13
Table 2	<i>Risk-Need Profile of CoMHISS Respondents and Incoming Male Offenders Who Were Not Assessed on CoMHISS</i>	15
Table 3	<i>Alcohol and Drug Use Among CoMHISS Respondents and Incoming Offenders Who Did Not Complete CoMHISS</i>	17
Table 4	<i>Risk-Need Profile of CoMHISS Respondents and All Other Male Offenders in Custody</i>	18
Table 5	<i>BSI Results T-Scores Based on Non Patient Norms</i>	20
Table 6	<i>BSI Results by Aboriginal Status T-Scores Based on Non Patient Norms</i>	21
Table 7	<i>BSI Results T Scores Based on Outpatient and Inpatient Norms</i>	22
Table 8	<i>BSI Results by Aboriginal Status T-S scores Based on Non Patient Norms</i>	23
Table 9	<i>BSI Results by Aboriginal Status T Scores Based on Outpatient Norms</i>	24
Table 10	<i>DHS Results T-scores Based on Offender Norms</i>	26
Table 11	<i>DHS Results by Aboriginal Status T Scores Based on Offender Norms</i>	27
Table 12	<i>PDS Results for Offenders Completing the CoMHISS</i>	28
Table 13	<i>PDS Results for Offenders Completing the CoMHISS by Aboriginal Status</i>	28
Table 14	<i>Results of CoMHISS by Reception Centre, T scores based on Non Patient Norms</i>	29
Table 15	<i>Overlap between BSI and DHS, T Scores based on Non Patient Norms on the BSI and Offender Norms on the DHS</i>	31
Table 16	<i>Point-Biserial Correlations of Offender Profile Variables with BSI Global Severity Index and DHS Depression scale</i>	32
Table 17	<i>Estimates of Co-occurring Disorders Using CoMHISS and CASA Results.</i>	35

List of Figures

<i>Figure 1.</i> Frequency of Respondents Completing CoMHISS as a Function of the Number of Days Between Admission and CoMHISS Administration.	30
---	----

List of Appendices

Appendix A: CoMHISS Results: Drumheller Institution Reception	42
Appendix B: CoMHISS Results: Edmonton Institution Reception	44
Appendix C: CoMHISS Results: Grande Cache Institution- Reception.....	46
Appendix D: CoMHISS Results: Stony Mountain Institution-Reception	48
Appendix E: CoMHISS Results: Prairie Region Totals of All Reception Centres	50
Appendix F: CoMHISS Results:Ontario Region Reception Millhaven	52
Appendix G: CoMHISS Results Pacific Institution- Reception.....	54
Appendix H: CoMHISS Results: Quebec Regional Reception Centre.....	56
Appendix I: CoMHISS Results: Atlantic Reception.....	58
Appendix J: Point-Biserial Correlations of Offender Profile Variables and the BSI	60
Appendix K: CSC Norms for Male Offender Raw Scores, Associated T- Scores and Percentage of Offenders Scoring Higher (N=1197).....	61

Introduction

Mental health problems among offenders are of increasing concern for the Correctional Service of Canada (CSC). Between the time period of March 1997 and March 2008, the percentage of in-custody male offenders identified at intake as having a past mental health diagnosis almost doubled from 10% to 18% (CSC, 2008). Similarly, the proportion with a current diagnosis increased from 7% to 13% and the proportion currently prescribed medication for mental health issues increased from 9% to 21% (CSC, 2008). Recent rates are even higher for women. The percentage of women offenders with past mental health diagnoses rose from 20% to 31%, while the percentage with a current diagnosis at intake increased from 13% to 24%, and the rate of women offenders currently prescribed medication escalated from 34% to 46% (CSC, 2008). Even higher rates of psychiatric disorders in prison populations have been quoted in some studies where lifetime prevalence rates have ranged from 64% to 81% (Brinded, Simpson, Laidlaw, Fairley, & Malcolm, 2001; Diamond, Wang, Holzer, Thomas, & Cruser, 2001; Jordan, Schlenger, Fairbank, & Cadell, 1996).

The forgoing statistics show an increasing challenge related to mental health for correctional systems such as the Correctional Service of Canada. The CSC data, however, are based on simple questions asked of offenders about their current and past mental health status as part of the case analysis process when they are admitted into the federal correctional system. The results are useful for tracking general trends, but not particularly useful for determining who requires immediate detailed assessment or for guiding intervention strategies. The development of a mental health screening tool for offenders entering the federal correctional system is needed to ensure that offenders who require mental health services are appropriately identified and referred. Due to the large number of offenders who are processed at CSC reception institutions each year (4,996 new federal warrants of committal for a 12 month period from 2008-2009), a standardised nationally implemented, computer-based screening system that is valid and practical for brief initial screening may be the most effective approach. As a result, CSC developed the Computerized Mental Health Intake Screening System (CoMHISS) in order to address this need.

Screening for mental health problems through CoMHISS is an initial component of the continuity of care established for federally sentenced offenders with mental health needs. Those offenders who are assessed as meeting a specified cut off score on the mental health screening instruments are referred for a follow-up session with a mental health professional, usually a registered psychologist. The assessment information allows the psychologist to prescribe the level of mental health intervention and services required to meet the offender's need. The type of services available to offenders with significant mental health problems varies by setting. In the institutions some of these interventions include:

- Services offered by Primary Mental Health Care teams. These teams use a multidisciplinary clinical approach and are responsible for developing, sharing and monitoring the Mental Health Treatment Plans;
- Intensive care for offenders with serious psychiatric illness available within the regional treatment centres;
- Services from mobile teams linked to the psychiatric and treatment centres that provide additional support to staff so they can more effectively manage offenders with mental health needs.

In addition to the mental health services within federal penitentiaries, some of the larger parole offices have now implemented the Community Mental Health Initiative which is designed to assist offenders with serious mental disorders as they transition into the community. This initiative helps offenders prepare for release and links them with services while they are under supervision in the community.

A national mental health screening system provides other benefits in addition to providing data that form the basis for referrals for further mental health services. A computerised assessment system decreases the time demands currently placed on mental health staff since the initial screening does not have to be completed by a psychologist. A computerised system also allows for the production of automated statistical reports that compile data on institutional, regional, and national results. These data will allow administrators to monitor changes in the prevalence rates of offender mental health problems and target funding for regions and institutions with higher numbers of offenders with these problems.

This research report provides the results of the national pilot of the CoMHISS. It focuses on the assessment of the percentage of offenders who would be screened into further evaluation based on two cut-off scores, applying various population norms. Additional analysis examines the relationship of scores on the CoMHISS with markers of mental health problems including substance abuse. The profile of offenders who refused to complete the CoMHISS assessment or who produced invalid results is compared with those who successfully completed the assessment. Finally, the report will present an analysis that examines whether the offenders' level of distress as reported by a key CoMHISS measure is related to the length of time they have been in the reception unit before participating in the assessment. The report presents the results for male offenders only since the number of assessments completed by incoming federally sentenced women offenders over the period of the pilot was too few to allow for meaningful analyses. A report on the results of the CoMHISS assessment on federally sentenced women will be prepared at a later date.

Method

Measures

Three measures with established psychometric properties were chosen as the components of this initial version of CoMHISS: the Paulhus Deception Scale (PDS), and two psychological screening tools, the Brief Symptom Inventory (BSI) and the Depression, Hopelessness and Suicide Screening Form (DHS). The latter two instruments are screening tools chosen based on research that demonstrated their capacity to identify individuals who are experiencing high levels of psychological distress. The Paulhus was chosen to determine to what extent the scores on the screening tools might be affected by the respondents' impression management.

Paulhus Deception Scale

The PDS (Paulhus, 1999), also known as the Balanced Inventory of Desirable Responding, is a self-report measure with 40 items rated on a Likert scale ranging from 1 (Not True) to 5 (Very True). The PDS provides an estimate of the extent of socially desirable responding. The inventory is based on the assumption that individuals with a propensity for self-deception tend to deny having psychologically threatening thoughts and feelings. The measure contains two subscales: (1) Impression Management, which assesses the conscious use of deception; and (2) Self-Deception Enhancement, which assesses the unconscious tendency to give honest but inflated responses. The PDS has been used with male and female offenders and has been found to have sufficient reliability (Cronbach's alpha ranged from .58 to .84) and validity, although these results are based on the previous version of the PDS (Irving, Taylor, & Blanchette, 2002; Kroner & Weekes, 1996; Lanyon & Carle, 2007). The measure is already in common use throughout CSC to assess the validity of self report measures used in the delivery of correctional programs and is available in both English and French.

While several measures have been designed to assess social desirability, the PDS is the only measure that uses two separate scales to assess differing types of deception (deliberate versus unintentional; Paulhus, 1999). The newly admitted offender population may be particularly vulnerable to denial about their psychological/psychiatric problems

(Kroner & Weekes, 1996). In addition, the PDS is the only measure of this type that includes a scoring procedure to account for extreme responses, and thus provides assurance that artificially high scores that are indicative of exaggeration are identified (Paulhus, 1999). In the CoMHISS, the PDS serves a corroborative function that helps ensure that offenders who deny any psychological problems do not move through the screening process undetected. It also points to offenders who may be exaggerating their symptoms or who are having difficulty understanding the items to the point that the measure's results should be considered invalid.

The Depression, Hopelessness and Suicide Screening Form (DHS)

The DHS was initially developed and validated on medium security male inmates in Canada (Mills & Kroner, 2004) which increases its applicability to this project. The DHS measures two constructs, depression (17 items) and hopelessness (10 items) in addition to screening for other risk factors associated with suicide/self-harm (12 items). The 39 items in the questionnaire are answered dichotomously (True or False). The DHS has been tested with federally sentenced women offenders and was found to have acceptable psychometric properties with this population (Pagé & Kroner, 2008). In addition, the DHS was validated with female incarcerates of a US County jail (Stewart, 2006). The authors report good reliability of the scales (Cronbach's alpha ranged from .75 to .87) (Mills and Kroner, 2004). Mills and Kroner (2004) assessed convergent validity by correlating the DHS with Jackson's (1989) Depression scale on the Basic Personality Inventory. It was determined that the convergent validity of both the Depression ($r = .60$) and Hopelessness ($r = .70$) subscales was good in an offender population (Mills & Kroner, 2004). Mills and Kroner (2005) demonstrated that the DHS was generally equivalent to interviews and file reviews at identifying offenders with a history of self-harm. No single approach identified all offenders with a history of self-harm; therefore, the authors recommended using the DHS as part of an overall screening process. The DHS has also been shown to correlate well with the "industry standard", the Beck Depression Inventory and Beck Hopelessness Scale in both an offender sample (Mills, Reddon, & Kroner, 2009) and a student sample (Mills, Morgan, Reddon, Kroner, & Steffan, 2009).

The two scales on the DHS, Depression and Hopelessness, were shown to be very accurate (ROC of .99 and .92 respectively) in detecting offender distress as defined by multiple elevations of the four domains of Depression, Anxiety, Hypochondrias and Self-Depreciation on the Basic Personality Inventory (Mills & Kroner, 2005). The DHS is related to the “psychache” (defined as intense psychological pain) which is considered a precursor to acts of self-harm (Mills, Green, & Reddon, 2005). Elevations on the Depression scale indicate endorsement of thoughts and feelings of sadness, disappointment and failure. Items reflecting difficulties sleeping, lack of energy and loss of appetite are included in the scale. High scores on the Hopelessness scale suggest the respondent sees the future as bleak and unhappy. A third component of the measure is the 12 items associated with risk for suicide.

Scoring, interpretation and recommended cut-off scores

The authors of the DHS have advised that T-scores can be used to determine suitable cut-offs for a given population. In addition, elevations on the scales of Depression and Hopelessness in conjunction with a history of self-harm and cognitions permissive of suicide have been shown to indicate an increased likelihood for suicide related ideation (Mills & Kroner, 2008). For the purposes of this report, we have identified offenders with T-scores of 65 and above which is consistent with the same cut-off score chosen for the BSI as well as T-scores of 60 and above. The authors advise that mental health professionals need to establish their own decision rules around intervention for respondents endorsing the suicide risk items, but they recommend that endorsement of any of the three items related to current suicidal ideation warrants a further assessment for potential risk for suicide.

The Brief Symptom Inventory (BSI)

The BSI (Derogatis, 1993) is a 53 item self report symptom inventory that assesses nine patterns of clinically relevant psychological symptoms. It is a brief version of the Symptom Checklist List 90-R (SCL-90-R). Correlations between the BSI and SCL-R-90 are reported to range from .92 to .99 (Derogatis, 1993). The BSI has been used in a variety of clinical and counselling settings as a mental health screening tool and as a method of measuring symptom reduction during and after treatment. It has been demonstrated to retain its reliability and validity in numerous cross cultural studies. The nine dimensions the scale measures are: Somatization (distress arising from perceptions of bodily dysfunction),

Obsession-Compulsion (thoughts and impulses that are experienced as unremitting and irresistible but are of an unwanted nature), Interpersonal Sensitivity (feelings of personal inadequacy and inferiority in comparison with others), Depression (symptoms of dysphoric mood and affect as well as lack of motivation and loss of interest in life), Anxiety (nervousness and tension as well as panic attacks and feelings of terror), Hostility (thoughts, feelings or actions that are characteristic of anger), Phobic anxiety (persistent fear response to a specific place, object or situation that is irrational), Paranoid ideation (disordered thinking characteristic of projective thoughts, hostility, suspiciousness, grandiosity, fear of loss of autonomy, and delusions) and Psychoticism (withdrawn, isolated, schizoid lifestyle as well as first rank symptoms of schizophrenia such as thought control). The BSI also includes three indices of global distress: Global Severity Index (GSI), Positive Symptom Distress Index, and Positive Symptom Total. The global indices measure current or past level of symptomatology, intensity of symptoms, and number of reported symptoms, respectively. The author reports good internal consistency reliability for the nine dimensions, ranging from .73 on Psychoticism and Paranoia to .88 on Anxiety. The GSI had strong internal consistency reliability with a Cronbach's alpha coefficient of .97 (Derogatis, 1993). Good internal consistency reliability is supported by several other independent studies (Croog et al., 1986; Aroian & Patsdaughter, 1989 in Derogatis, 1993). No alpha reliability is reported for the other two global indices. Test-retest reliability for the nine symptom dimensions ranges from .68 (Somatization) to .91 (Phobic Anxiety), and for the three Global Indices from .87 (PSDI) to .90 (GSI) (Derogatis, 1993).

Correlations between the BSI and other measures evaluating similar symptoms are moderate to high. The BSI correlation with the Wiggins content scales and the Tryon cluster scores from the MMPI ranged from .30 to .72 with the most relevant score correlations averaging above .50 (Conoley & Kramer, 1989; Derogatis, Rickles, & Rock, 1976 in Derogatis, 1993). Some research using factor analysis has confirmed the a priori construction of the symptom dimensions. Many studies have demonstrated the utility of the measure in accurately identifying distress in samples from various ethnic backgrounds. Internal consistency estimates and triangulation of individual BSI global and subscale scores with verbal self-reports and clinical assessments demonstrate that the BSI is a relatively reliable and valid cross-cultural measure of global psychological distress (Aroian, Patsdaughter,

Levin & Gianan, 1995). However, some studies have found little evidence for the number of dimensions (Schwannauer & Chetwynd, 2007). References to studies on the validity of the BSI are found in the manual (Derogatis, 1993).

Scoring, interpretation and recommended cut-offs

Raw scores on the nine subscales and the GSI are calculated by summing the values for the items in each dimension (including four additional items for the GSI) and then dividing by the number of endorsed items in that dimension. The Positive Symptom Total is calculated based on the total count of the number of non-zero items endorsed and reveals the number of symptoms the respondent reports experiencing. The Positive Symptom Distress Index is calculated by summing the values of the items receiving non-zero responses divided by the Positive Symptom Total. This index provides information about the average level of distress the respondent experiences. An individual must answer at least 40 items of the BSI and must not provide the same response for every item on the measure for the responses to be considered a valid administration of the test.

T-scores are calculated by comparing a given raw score to the normative tables which are calculated with data from a population generally provided with the measure. T-scores for a given instrument and for a certain population have a mean of 50 and standard deviation of 10. This means that the vast majority (97.7%) of individuals from that same population would have a T-score less than 70. Any individual scoring higher than 70 would be considered to have an unusually high score compared to the population for which the T-scores were calculated. An unusually low T-score would be 30 or less. Frequently, a cut-off T-score of 65 is used in identifying very high scores. Only about 7% of the referent population would score higher than a T-score of 65.

To calculate an individual's T-score relative to a given raw score it is necessary to have a population to which his or her score is compared. Typically tables which present the raw scores from a population and the associated T-score are published with the measure. These tables are called norms. If the mean and standard deviation of the population's raw scores of a measure are provided, a z-score can be calculated (raw score subtract the population mean raw score divided by the population standard deviation) and converted to a T-score by multiplying by 10 and adding 50.

The BSI manual provides norms based on four groups each separated for males and females: adult non-patients, adult psychiatric outpatients, adult psychiatric inpatients and adolescent non-patients. The test author advises that the Global Severity Index is the scale that is the most sensitive single indicator of distress. The author has not set cut-off scores to determine when further evaluation is warranted. He does advise, however, that using the reference group of adult non-patients a T-score of 63 or above on the GSI or a T-score of 63 and above on any two dimensions would be considered a “case” worthy of further evaluation. This report examined the percentage of offenders who fell at or above a T-score of 65 since the mental health division of CSC chose this cut-off to flag a case for follow up. Some psychologists, however, may opt for a more liberal criterion to reduce the chance of overlooking offenders who may require additional services. The results, therefore, also present the percentage of offenders who would meet a T60 criterion.

An individual with a given raw score will receive different T-scores depending upon the population on which the scores are normed. For example, a raw score of 0.68 on the Global Severity Index could place the offender at the 93rd percentile using non patient norms which is a high score, but at the 46th percentile compared to an in-patient population, a moderate score. Deciding which population is a suitable comparison is not always straightforward. Although there is evidence of substantial mental disorder among offenders, they are not a psychiatric population so for this project the adult non patient group was chosen as the reference population. Estimates using the T-65 cut-off for the outpatient and in-patient psychiatric norms are also provided in order to compare the degree of distress of federal offenders to that of psychiatric populations. Given the large number of federal offenders who completed this assessment and the uniqueness of the population it was feasible to develop norms relevant to this population. To develop the CSC norms for male offenders on the scales and the GSI of the BSI, a large sample was selected to represent the population of male CSC offenders and estimate the population mean and variability of the scale and GSI scores. For example, the mean raw score on the GSI of 0.69 was rescaled to a normative distribution of 50. The standard deviation of the distribution of raw scores was rescaled to be 10. The raw score that corresponds to a given T-score is calculated through the following formula: $\text{Raw Score} = \text{raw mean} + [(\text{given T-score} - 50) (\text{raw score standard deviation})]/10$. Further research is required to identify meaningful cut-off scores using the CSC norms.

Offender Background Information from OMS

The background information on the CoMHISS participants was extracted from components of the Offender Management System (OMS, the official electronic record on all federally sentenced offenders). Risk variables were drawn from the Offender Intake Assessment (OIA) which is a comprehensive evaluation conducted on all incoming offenders in CSC. The Dynamic Factors Identification and Analysis (DFIA) component of the OIA assesses a wide variety of dynamic risk factors grouped into seven domains, with each domain consisting of multiple indicators. The DFIA yields ratings of need levels for each domain, as well as an overall level of dynamic need ranging from low to considerable (high). The principal tool used for assessing risk level in federal male offenders is the Statistical Information on Recidivism (SIR) Scale which is based on static risk factors. The final score provides estimates of risk from very good to very poor. In addition to this tool, the Static Factors Assessment (SFA) provides comprehensive information pertaining to the criminal history and risk factors of each offender yielding an overall level of low, medium, or high static risk assigned to offenders at their time of admission. CSC policy does not permit the use of the SIR for Aboriginal offenders. Therefore, for this study, the estimate of risk for Aboriginal offenders is provided through the overall static risk rating.

The CASA (Computerized Substance Abuse Assessment) is the part of the intake assessment that evaluates the extent of substance misuse and its relationship to offending. This assessment procedure includes the results of several well validated measures of substance misuse including the 20-item Drug Abuse Screening Test (DAST) (Skinner, 1982) and the Alcohol Dependency Scale (ADS) (Skinner & Horn, 1984), and the 15-item Problems Related to Drinking Scale (PRD) and the 25-item Michigan Alcohol Screening Test (MAST) (Selzer, 1981). The CASA uses the ADS, the DAST and the PRD to derive overall substance abuse scores and program referral recommendations. In this study, scores on these measures were related to the measures that are components of CoMHISS to estimate the extent of concurrent disorders among the incoming male federal offender population.

Procedure

For the pilot, the CoMHISS questionnaires were administered in paper-and-pencil format. Staff at the psychology department of the reception centres administered the questionnaires to all consenting participants and mailed a copy of the results to National Headquarters where they were entered into the database.

The analyses include descriptive statistics on the scores of participants on the three measures in the CoMHISS assessment as well as background information on the CoMHISS participants and the incoming male offenders who entered CSC at the same time as the participants but did not receive the CoMHISS assessment. In addition, offenders who successfully completed the CoMHISS were compared to a small group of offenders who refused the assessment or produced invalid forms. Chi-square analyses were conducted to determine if differences between groups were significant.

Participants

Federally sentenced male offenders entering the regional reception centres on a new sentence during a 13 month period were asked to participate and complete the measures after having signed a consent form. Some regional reception centres launched their participation in the pilot later than others so their numbers are relatively lower than what would have been expected. In total, 1,370 male offenders were asked to participate. Of the 1302 offenders who agreed to take the CoMHISS during the period of this pilot, 93 produced results that were considered invalid. Of these, 42 responded “Not at all” to all items, nine answered too few of the items in the test for a valid response and 42 offenders were missing responses to all the items.

Over the period of a year, CSC usually receives almost 5,000 offenders with new sentences. Since the pilot began later in some of the reception centres, the total number of offenders who were assessed on CoMHISS from February 2008 to April 2009 fell well short of 5,000. In order to determine whether the CoMHISS respondents were representative of the total population of new offenders, Table 1 compares the profiles of CoMHISS respondents to those who came into custody at the same time on new sentences, but did not complete the assessment. Results indicate that there was no consistent pattern of differences between these two groups of offenders based on key profiling variables. Of note, the differences in the

percentage of offenders who are Aboriginal is not significant, suggesting that there was no selection bias in the recruitment of Aboriginal respondents to the CoMHISS assessment.

Table 1

Demographic Profile of CoMHISS Respondents and Incoming Male Offenders Who Were Not Assessed on CoMHISS

	CoMHISS Respondents	Offenders Not Assessed on CoMHISS
Demographics	%	%
Race	N = 1,243	N = 4,431
Non-Aboriginal	84.4	81.7
Aboriginal	15.6	18.3
Marital Status	N = 1,271	N = 4,425
Single	44.3	47.3
Common Law	35.9	34.2
Married	8.5	7.9
Other	11.3	10.6
Education level at last admission	N = 1,224	N = 4,095
Less than Grade 8	19.0	22.3
Grade 8 to Grade 9	22.4	24.4
Grade 10 to Grade 12	29.5	28.5
High School or more	27.3	23.8
Unknown	1.7	1.0
Unstable Job History	N = 1,238	N = 4,225
Yes	64.2	60.6
No	35.8	39.4
Current offence (major)	N = 1,288	N = 4,431
Homicide	5.8	6.4
Sexual offence	11.9	12.9
Robbery	14.8	15.0
Assault	11.3	12.9
Other violent	1.6	2.2
Drugs related	21.5	20.1
Other non-violent	33.1	30.6
Sentence Length	N = 1,275	N = 4,431
Less than two years	0.1	1.6
Two to less than five years	81.9	80.1
Five to less than ten years	12.5	13.1
Ten to less than fifteen years	1.4	1.3
Fifteen years and more	0.3	0.2
Lifers	3.6	3.7

Note. Percentages will not always sum to 100% because of rounding error, and *N* values vary due to missing values.

Results

This section begins with a more detailed description of the offenders participating in the CoMHISS pilot and then focuses on the results of the CoMHISS assessment. Tables 2 and 3 provide additional comparisons of the incoming offenders who completed the CoMHISS to those who did not. The results indicate weak significant differences between the two groups on some variables, but no consistent pattern which would have suggested a selection bias. It is important to note that there were no significant differences between the two groups on indicators related to estimates of rates of mental illness, indicating that staff were not selecting respondents for the assessment based on an observed concern about their mental health status.

Previous research has shown that Aboriginal offenders are over represented in CSC relative to their numbers in the general Canadian population. In order to have a better understanding of this segment of the federal offender population and to determine if their mental health needs differ from non-Aboriginals, the results are broken down by Aboriginal status and presented in Table 2. The results indicate that Aboriginal offenders are significantly higher risk ($\chi^2(2) = 36.88, p < .001$) and higher need ($\chi^2(2) = 27.87, p < .001$) than non-Aboriginals. Although Aboriginal and non-Aboriginal offenders have similar rates of current mental health issue diagnoses ($\chi^2(1) = 0.36, p = .55$) based on items on the OIA completed by parole officers, Aboriginal offenders are less likely to have indicated that they had past diagnoses of mental health issues ($\chi^2(1) = 4.89, p = .03$).

Table 2

Risk-Need Profile of CoMHISS Respondents and Incoming Male Offenders Who Were Not Assessed on CoMHISS

Profile Variable	CoMHISS Respondents		Offenders Not Assessed on CoMHISS	
	Non-Aboriginal	Aboriginal	Non-Aboriginal	Aboriginal
	%	%	%	%
Overall Risk	N = 860	N = 167	N = 3,436	N = 792
Low	18.7	4.1	16.9	5.6
Medium	43.0	37.4	42.8	27.7
High	38.3	58.5	40.3	66.8
Overall Need	N = 860	N = 167	N = 3,436	N = 792
Low	11.5	2.6	10.6	2.7
Medium	37.8	23.1	34.8	20.3
High	50.7	74.4	54.6	77.0
Diagnosed with Mental Health Issues in Past	N = 850	N = 165	N = 3,377	N = 773
Yes	15.3	11.4	15.6	17.2
No	84.7	88.6	84.4	82.8
Diagnosed with Mental Health Issues Currently	N = 845	N = 164	N = 3,353	N = 763
Yes	9.8	9.4	10.4	9.0
No	90.2	90.6	89.6	91.0

Note: N values vary due to missing values.

The literature points to high rates of co-occurrence of mental health and substance use problems among offender populations (e.g., Swartz & Lurigio, 1999; Ulzen & Hamilton, 1998). Table 3 presents information on the extent of substance abuse among the CoMHISS respondents and incoming offenders who did not complete CoMHISS. The information is extracted from the OIA as well as from the results of the self administered Computerized Assessment of Substance Abuse (CASA; Kunic & Grant, 2007). Overall there was not a consistent pattern of differences in rates of substance abuse between the CoMHISS respondents and those who did not complete the assessment. Of note, the results indicate that Aboriginal offenders have significantly higher rates of drug ($t(1,024) = 3.75, p < .001$) and

alcohol problems ($t(1023) = 7.23, p < .001$) according to scores from the OIA, but this difference is much greater when we look at their CASA assessed alcohol dependence scores ($t(1161) = 5.89, p < .001$).¹ Aboriginal offenders are five times more likely to be categorized as severely dependent on alcohol as non-Aboriginal offenders according to the results of the ADS.

It should be noted that the profile of offenders entering CSC on new sentences in reception centres may differ significantly on important characteristics from those who are in custody in the institutions. Offenders with longer sentences and offenders who have returned to custody on new charges tend to have higher risk and need levels than those with shorter sentences or those who are coming into reception on a new offence. These differences are highlighted in Table 4. As the numbers of longer term offenders accumulate in the prison population relative to those with shorter sentences, the rates of needs in domains related to substance abuse and personal emotional problems increase. For example, during the time period that the CoMHISS was piloted, rates of current mental health problems as assessed by an item on the OIA were 33% greater for male offenders in custody than for those coming into reception on new sentences.

¹ CASA uses objective assessment with standardised tools while the OIA is completed by a parole officer and is related to how criminal behaviour is affected by substance abuse.

Table 3

Alcohol and Drug Use Among CoMHISS Respondents and Incoming Male Offenders Who Did Not Complete CoMHISS

Measure	CoMHISS Respondents		Offenders Not Assessed on CoMHISS	
	Non-Aboriginal	Aboriginal	Non-Aboriginal	Aboriginal
	%	%	%	%
OIA –Abuse alcohol	N = 857	N = 167	N = 3,394	N = 788
Yes	45.2	72.8	43.4	81.6
No	54.8	27.2	56.6	18.4
OIA- Abuse Drug	N = 858	N = 167	N = 3,410	N = 790
Yes	61.6	78	62	78.4
No	38.5	22	38	21.7
Alcohol dependence (ADS)	N = 984	N = 178	N = 3,243	N = 758
None	56.1	30.4	58.1	24.1
Low	33.3	38.7	33.1	41.3
Moderate	6.5	16.8	5.4	18.1
Substantial	3.2	8.9	2.2	11.6
Severe	1.0	5.2	1.2	4.9
Alcohol Problems (PRD)	N = 984	N = 178	N = 3,243	N = 758
No	64.2	42.4	66.5	27.8
Some	14.2	14.7	14.9	14.9
Quite a few	13.4	18.3	11.0	27.0
A lot	8.2	24.6	7.7	30.2
Drug Abuse (DAST)	N = 984	N = 178	N = 3,243	N = 758
None	39.1	27.8	41.4	23.6
Low	22.2	25.7	21.5	28.6
Moderate	16.3	22.5	14.7	22.2
Substantial	15.6	17.3	16.2	17.0
Severe	6.7	6.8	6.2	8.6

Note: N values vary due to missing values.

Table 4

Risk-Need Profile of CoMHISS Respondents and All Other Male Offenders in Custody

Profile Variable	CoMHISS Respondents		All Other Offenders in Custody	
	Non-Aboriginal	Aboriginal	Non-Aboriginal	Aboriginal
	%	%	%	%
Overall Risk	N = 860	N = 167	N = 8,834	N = 2,267
Low	18.7	4.1	6.4	2.5
Medium	43.0	37.4	31.9	21.7
High	38.3	58.5	61.6	75.7
Overall Need	N = 860	N = 167	N = 8,834	N = 2,267
Low	11.5	2.6	3.7	1.0
Medium	37.8	23.1	25.6	15.0
High	50.7	74.4	70.6	84.0
Diagnosed with Mental Health Issues in Past	N = 850	N = 165	N = 7,677	N = 2,006
Yes	15.3	11.4	19	19.8
No	84.7	88.6	81	80.2
Diagnosed with Mental Health Issues Currently	N = 845	N = 164	N = 7,624	N = 1,997
Yes	9.8	9.4	13.3	13.4
No	90.2	90.6	86.7	86.5
OIA – Abuse alcohol	N = 857	N = 167	N = 7,740	N = 2,040
Yes	45.2	72.8	48.7	82.6
No	54.8	27.2	51.2	17.4
OIA- Abuse Drug	N = 858	N = 167	N = 7,756	N = 2,107
Yes	61.6	78	65	82.2
No	38.5	22	35	17.7

Note: N values vary due to missing values.

The next tables provide the results of the CoMHISS assessment. Tables 5 and 6 present the overall mean scores for the nine domains of the Brief Symptom Inventory (BSI) and its indices of psychological distress as well as the percentage of offenders who scored at or above two groupings of T-scores, T-scores at or above 60 and T-scores at or above 65.

These tables apply the non patient norms. The Global Severity Index (GSI) result is highlighted in the tables because the test author suggests that it is the most sensitive overall measure of psychological distress. Results for the regional reception centres along with individualised results from the institutions that conduct the intake in the Prairie region are presented separately in Appendices A to I. The Prairie region is the only region that currently has multiple sites returning data because they do not have a centralised reception unit.

Table 5 shows that over 25% of respondents score at or above T65 on all the scale dimensions of the BSI except for the Hostility and Phobic Anxiety scales. Using the GSI as the key barometer of psychological distress, about 38% of offenders nationally score at or above a T score of 65. A more liberal cut-off of T60 will increase this estimate to over 50%. Table 6 presents the results analysed by Aboriginal status. About 38% of non- Aboriginal and 44.1% of Aboriginal respondents meet the T65 cut-off. The difference in rates of distress between the two groups is not statistically significant ($\chi^2(1) = 2.64, p = .10$) nor is the difference between the raw scores on the GSI. Based on the results from the pilot there does not appear to be a compelling reason for applying different norms or cut off scores for Aboriginal offenders. Overall, federal male offenders are reporting considerable rates of distress. They are reporting significantly more symptoms than the non-patient population of adult males reported in the BSI manual ($\chi^2(1) = 1,941.02, p < .001$).

Table 5

BSI Results: T-Scores Based on Non Patient Norms

Subscale or Index	Mean Raw Scale Score N=1209	T-score ≥ 60 %	T-score ≥ 65 %
Somatization	0.55	36.8	27.6
Obsessive-Compulsive	0.83	40.9	29.9
Interpersonal Sensitivity	0.62	34.6	26.0
Depression	0.75	53.2	36.9
Anxiety	0.69	38.0	31.1
Hostility	0.47	30.0	12.3
Phobic Anxiety	0.38	44.7	23.3
Paranoid Ideation	0.87	49.8	30.6
Psychoticism	0.75	62.9	51.0
Global Severity Index (GSI)	0.68	51.1	38.4
Positive Symptom Total	19.37	46.6	31.8
Positive Symptom Distress Index	1.69	49.6	31.4

Note. The *N* values vary because of missing data.

Table 6

BSI Results by Aboriginal Status: T-Scores Based on Non Patient Norms

Sub Scale or Index	Non Aboriginal N = 976			Aboriginal N = 177		
	Mean Raw Scale Score	T-score ≥ 60 %	T-score ≥ 65%	Mean Raw Scale Score	T-Score ≥ 60 %	T-score ≥ 65 %
Somatization	0.54	36.6	26.9	0.60	39.6	31.1
Obsessive- Compulsive Interpersonal Sensitivity	0.81	39.7	28.6	0.98	48.3	38.6
Depression	0.62	34.3	26.1	0.68	39	28.8
Anxiety	0.76	53.6	37.2	0.69	52.5	35.6
Hostility	0.69	37.5	31.1	0.68	40.1	31.6
Phobic Anxiety	0.45	29	11.8	0.59	36.7	15.8
Paranoid Ideation	0.37	43.9	22.5	0.49	53.7	31.1
Psychoticism	0.86	50.2	30.9	0.89	49.4	29.2
Global Severity Index (GSI)	0.75	61	48.8	0.74	63.8	52.5
Positive Symptom Total	0.69	50.7	37.6	0.72	55.4	44.1
Positive Symptom Distress Index	19.26	46.7	31.3	20.71	51.4	36.7
	1.69	41.9	25.5	1.70	48	30.5

Note. The *N* on individual scale scores can vary because of missing data.

Table 7 compares the rates of significant distress as measured by a cut-off of T65 and T60 when in-patient or out-patient psychiatric norms are used. The rates of offenders reaching the T65 criteria using these norms are much lower than they are when non-patient norms are applied. Interestingly, the differences in the percentage of cases that would be screened in at the T65 cut-off are essentially the same whether one consults the norms on the psychiatric in-patient or out-patient reference group. Tables 8 and 9 show the breakdown of the BSI results using inpatient and outpatient norms for Aboriginal and non Aboriginal offenders. Both Aboriginal and non Aboriginal male federal offenders in this study express

lower levels of distress than do psychiatric patients, but significantly greater distress than a non-patient population.

Table 7

BSI Results: T Scores Based on Outpatient and Inpatient Norms

Subscale or Index	Mean Raw Scale Score N = 1209	Outpatient Norms		Inpatient Norms	
		T-score ≥ 60 %	T-score ≥ 65 %	T-score ≥ 60 %	T-score ≥ 65 %
Somatization	0.55	14.6	6.2	8.8	3.3
Obsessive-Compulsive	0.83	5.7	2.4	10.5	3.1
Interpersonal Sensitivity	0.62	3.9	1.7	9.8	3.9
Depression	0.75	1.8	0.2	4.3	0.3
Anxiety	0.69	5.5	3.5	6.6	3.5
Hostility	0.47	4.3	1.7	6.0	2.9
Phobic Anxiety	0.38	8.5	3.1	8.4	1.7
Paranoid Ideation	0.87	8.5	2.8	11.0	4.1
Psychoticism	0.75	10.4	3.7	13.3	3.7
Global Severity Index (GSI)	0.68	7.1	2.7	8.9	2.4
Positive Symptom Total	19.37	9.2	5.5	11.0	5.5
Positive Symptom Distress Index	1.69	6.5	2.9	9.0	3.0

**Note.* The *N* varies on some scales because of missing data.

Table 8

BSI Results by Aboriginal Status: T-scores Based on Non Patient Norms

Sub Scale or Index	Non Aboriginal N = 976			Aboriginal N = 177		
	Mean Raw Scale Score	T-score ≥ 60 %	T-score ≥ 65 %	Mean Raw Scale Score	T-Score ≥ 60 %	T-score ≥ 65 %
Somatization	0.54	7.2	3.1	0.60	11.5	2.5
Obsessive- Compulsive	0.81	8.9	2.8	0.98	11.5	3.5
Interpersonal Sensitivity	0.62	8.5	3.3	0.68	10.5	4.5
Depression	0.76	4.2	0.4	0.69	1.5	1.5
Anxiety	0.69	6.0	3.5	0.68	5.5	1.0
Hostility	0.45	5.0	2.3	0.59	8.0	4.5
Phobic Anxiety	0.37	7.0	1.7	0.49	10.5	1.5
Paranoid Ideation	0.86	9.8	3.2	0.89	9.5	5.0
Psychoticism	0.75	11.9	3.7	0.74	11.0	1.5
Global Severity Index (GSI)	0.69	7.7	2.2	0.72	8.0	2.0
Positive Symptom Total Index	19.26	9.5	4.7	20.71	11.5	6.0
Positive Symptom Distress Index	1.69	8.2	2.7	1.70	7.0	2.5

* *Note.* The *N* on some scales can vary because of missing data.

Table 9

BSI Results by Aboriginal Status: T Scores Based on Outpatient Norms

Sub Scale or Index	Non Aboriginal N = 976			Aboriginal N = 177		
	Mean Raw Scale Score	T-score ≥ 60 %	T-score ≥ 65 %	Mean Raw Scale Score	T-Score ≥ 60 %	T-score ≥ 65 %
Somatization	0.54	12.6	5.2	0.60	15.0	6.0
Obsessive-Compulsive	0.81	5.1	2.2	0.98	5.5	2.5
Interpersonal Sensitivity	0.62	3.2	1.6	0.68	4.5	1.5
Depression	0.76	1.8	0.3	0.69	0.0	0.0
Anxiety	0.69	5.4	3.5	0.68	2.5	1.0
Hostility	0.45	3.6	1.4	0.59	6.5	3.0
Phobic Anxiety	0.37	7.1	3.0	0.49	10.5	2.5
Paranoid Ideation	0.86	7.3	2.2	0.89	9.0	4.0
Psychoticism	0.75	9.3	3.7	0.74	8.5	1.5
Global Severity Index (GSI)	0.69	5.9	2.5	0.72	7.0	2.0
Positive Symptom Total	19.26	7.7	4.7	20.71	11.0	6.0
Positive Symptom Distress Index	1.69	5.7	2.6	1.70	5.5	2.5

Note. N values on the scales vary because of missing data.

Given the large number of offenders who completed the BSI during the pilot, it was possible to begin the process of developing norms specific to the federal offender population. This is the preferred option given the uniqueness of the population. The DHS tool is already normed on an offender population. Appendix K presents the raw scores and converted T-scores for the BSI measure on the nine dimensions and on the overall measures of distress. Further research will be needed to establish which cut-off scores are meaningful for given administrative requirements.

The DHS provides an additional method of assessing the extent of symptoms of depression and also screens for suicide risk. Table 10 presents the national results of this component of the CoMHISS for all male offenders who completed the assessment at

reception. Similar to the BSI, a T-score at or above 65 was chosen as the cut off for screening purposes but the table also presents the percentage of offenders who scored at or above a T-score of 60. These T-scores are based on the norms provided in the DHS manual that are derived from results of administrations to federal offenders. As indicated in Table 10, the rates of reporting significant symptoms of depression on the DHS are somewhat lower than the rates of depression assessed on the Depression subscale of the BSI. This may be due to the population from which the norms for each measure were drawn since we have previously reported that the rates of anxiety and depression are higher in the federal offender population than in a non-patient, non-offender population. On the suicide screening component of the DHS, using decision rules outlined by the authors, roughly 3% of offenders should be provided with further assessment because they endorsed at least one of the three current suicide ideation indicators (Mills & Kroner, 2005). The table also indicates that over 20% of the population endorses at least one item on the historical suicide indicator scale. Table 11 presents the results of the DHS broken down by Aboriginal status. Aboriginal offenders do not appear to be significantly more depressed than non Aboriginals ($t(927) = 0.60, p = .552$), and they have roughly similar rates of endorsement of current suicide ideation items ($\chi^2(2) = 3.39, p = .184$).

Table 10

DHS Results: T-scores Based on Offender Norms

Sub Scale	N	Mean	T-score \geq 60 % (n)	T-score \geq 65 % (n)
Depression	971	4.81	29.1 (283)	24.0 (233)
Hopelessness	1,006	1.40	28.2 (284)	18.7 (188)
Suicide Items				
Endorses \geq 1				
% (n)				
Cognitive Suicide Indicator	1,074	0.07	5.9 (63)	
Current Ideation Indicator	1,062	0.06	3.9 (41)	
Historical Suicide Indicator	1,051	0.55	21.6 (227)	

Table 11

DHS Results by Aboriginal Status: T-Scores Based on Offender Norms

Sub Scale	Non Aboriginal N = 1,107			Aboriginal N=199		
	Mean Scale Score	T-score ≥ 60 % (n)	T-score ≥ 65 % (n)	Mean Scale Score	T-Score ≥ 60 % (n)	T-score ≥ 65 % (n)
Depression	4.76	28.5 (221)	22.8 (177)	4.99	30.5 (47)	27.3 (42)
Hopelessness	1.37	27.2 (217)	18.4 (147)	1.55	32.9 (53)	19.9 (32)
Suicide Items						
	N	Endorses ≥ 1 item % (n)		N	Endorses ≥ 1 % (n)	
Cognitive Suicide Indicator	853	5.9 (50)		170	4.7 (8)	
Current Ideation Indicator	842	4.0 (34)		170	2.4 (4)	
Historical Suicide Indicator	834	20.6 (172)		167	26.9 (45)	

The Paulus Deception Scales provide an indication of the validity of an individual's responses to self report measures. The author of the PDS (Paulhus, 1999) advises that T-scores of over 70 or under 30, especially under "high demand" conditions, warrant closer examination to determine the validity of the results. Tables 12 and 13 provide the results of the PDS for 968 offenders completing this measure during the period of the pilot. Eleven percent of respondents had T scores over 70 for Impression Management suggesting that they could have been deliberately presenting themselves in a favourable light thus possibly denying problems. The Self Deception Scale result suggests that about 20% of offenders have a tendency to unconsciously promote a favourable impression. Table 13 demonstrates that non-Aboriginal offenders compared to Aboriginal offenders were more likely to have T-scores greater than 70 on the Impression Management subscale ($\chi^2 (1) = 13.77, p < .001$) suggesting responses influenced by a desire to present oneself in a positive light. The difference between non-Aboriginal and Aboriginal offenders on the Self-Deceptive Enhancement subscale was not significant ($\chi^2 (1) = 0.92, p = .338$). Altogether these results

provide preliminary evidence that most offenders responding to the CoMHISS are providing valid profiles. The scope of this report does not include adjusting for PDS results but further analyses will be conducted to determine the implications of the observed results.

Table 12

PDS Results for Offenders Completing the CoMHISS

Sub-Scale	Mean (N=1,110)	T-score ≥ 70		T-score ≤ 30	
		n	%	n	%
Impression Management	7.39	170	15.3	-	-
Self-Deceptive Enhancement	4.45	218	19.6	-	-
Total	11.83	354	31.9	8	0.7

Table 13

PDS Results for Offenders Completing the CoMHISS by Aboriginal Status

Sub-Scale	Non-Aboriginal			Aboriginal		
	Mean (N = 884)	T-score ≥ 70 % (n)	T-score ≤ 30 % (n)	Mean (N = 171)	T-score ≥ 70 % (n)	T-score ≤ 30 n
Impression Management	7.56	17.0 (150)	-	6.19	5.8 (10)	-
Self-Deceptive Enhancement	4.47	20.1 (178)	-	4.32	17.0 (29)	-
Total	12.02	33.1 (293)	0.7 (8)	10.51	23.4 (40)	0

One of the strengths of a nationally implemented assessment procedure is the opportunity it provides to compare rates of psychological problems among groups of offenders at various regional and institutional sites. Table 14 presents the institutional and regional variability in rates of offenders at or above the T65 cut-off on the Global Severity Index of the BSI and the Depression scale of the DHS using non-patient norms. The totals for all the regional reception centres are comparable with the exception of the Atlantic region which has the highest rates of offenders reporting significant distress on both the DHS and GSI. These results of the individual reception sites should be regarded with caution given the small *N* for some sites.

Table 14

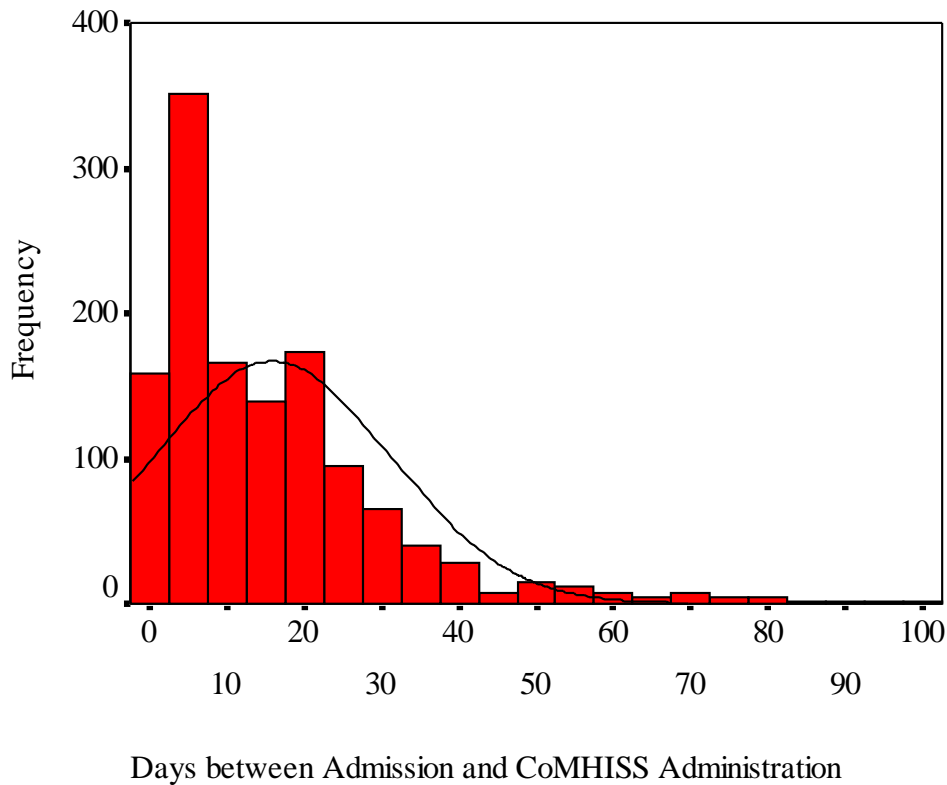
Results of CoMHISS by Reception Centre: T-scores Based on Non Patient Norms

Reception Centre	T-score \geq 65 Global Severity Index of BSI		T-Score \geq 65 Depression scale of the DHS
	N	% (n)	% (n)
Prairie Reception Centres (combined)	243	33.3 (81)	16.9 (42)
Ontario Reception (Millhaven)	218	33.5 (74)	23.6 (48)
Pacific Reception (RRAC)	395	38.5 (152)	25.5 (86)
Centre de Réception du Québec	187	38.5 (72)	20.6 (7)
Atlantic Reception (Springhill)	151	52.3 (79)	38.5 (48)

Additional Analyses

BSI scores relative to time of assessment. The rates of offenders scoring at or above T-score 65 on the BSI are high relative to a general, non-patient population, but as reported in the BSI manual, the rates are not out of line with rates reported for populations under situational stress. For example, the BSI manual reports that the percentage of a sample of patients waiting for orthopaedic consultation that were identified as “psychiatrically positive” (T of 63 or above on the GSI or T-scores of 63 on two or more dimensions) was 80% (Derogatis, 1993). The early period of incarceration in a federal penitentiary could reasonably be considered as a time of considerable stress and adjustment. The pilot of CoMHISS created conditions allowing for the examination of the change in mean scores on the CoMHISS over the 90 day time period during which offenders are in the Reception unit. Although some offenders had been admitted to penitentiary several weeks prior to the CoMHISS administration, as illustrated in Figure 1, most (75%) of the respondents participated in the assessment within the first three weeks of intake.

Figure 1. Frequency of Respondents Completing CoMHSS as a Function of the Number of Days Between Admission and CoMHSS Administration.



An analysis relating BSI scores to the dates when the offenders completed the testing produced a significant negative correlation ($r = -.07, p = .02$) indicating that those taking the test later had somewhat lower scores. A correlation this weak indicates that the time during which the testing was completed, at least within the 90 day window when offenders are at the reception centres, was not meaningfully related to the level of distress reported by offenders.

Overlap of DHS Scores and GSI. The percentage of offenders scoring above the chosen cut-off score on the GSI provides the lower end of an estimate of the number of offenders who will need to be seen for additional screening. To determine whether the number would increase with the inclusion of the results of the DHS, an analysis of the overlap in offenders reaching the cut-off for both measures was conducted. Table 15 presents the results applying the non-patient norms on the BSI. Generally, offenders scoring high on one scale also score high on the other; in other words, the two scales are in agreement.

However, 3.0% (27) of the offenders were experiencing distress (T-score of 65 or above) according to the DHS Depression scale, but not on the Global Severity Index of the BSI. As would be expected given that the Global Severity Index screens for a broader range of symptoms, 16.0% (145) of the offenders reported experiencing distress on the Global Severity Index but not on the DHS Depression scale (adding this group to the combined DHS and GSI group produces the 38% overall rate reported earlier). Estimates of offenders who may need additional screening would combine the percentage at the cut-offs on the BSI with the additional 3% who scored at cut-off on the DHS but not on the BSI.

Table 15

Overlap Between BSI and DHS: T- Scores Based on Non Patient Norms on the BSI and Offender Norms on the DHS

T-score greater than 65	N	%
Neither GSI nor DHS	533	58.7
Both GSI and DHS	203	22.4
GSI only	145	16.0
DHS only	27	3.0

Correlations of BSI and DHS Depression Scale Scores with Markers of Mental Disorder. Table 16 presents the results of point-biserial correlations using the BSI Global Severity Index and the DHS Depression Scale and several offender profile variables related to mental health. Although all of the correlations were small to moderate, they were significant and in the expected direction for both the Global Severity Index on the BSI and the Depression scale on the DHS. Neither scale had consistently stronger correlations than the other. This demonstrates a significant relationship between factors associated with mental disturbance and the scores on measures in the CoMHSS among male federal offenders.

Table 16

Point-Biserial Correlations of Offender Profile Variables with BSI Global Severity Index and DHS Depression scale

Profile Variable	BSI	DHS
	GSI	Depression
	r	r
Violent Offence (current)	.14***	.14***
Education Less than Grade 10	.10**	.10**
Unstable Job History	.13***	.21***
ADS (Alcohol)	.30***	.21***
DAST (Drugs)	.23***	.28***
PRD (Alcohol)	.11**	.16***
Past Diagnosis of Mental Health Issues	.27***	.26***
Current Diagnosis of Mental Health Issues	.29***	.28***
Overall Need	.21***	.23***
Overall Risk	.15***	.18***

Note. r values for Overall Risk and Overall Need are the square-root of adjusted R² values from ANOVA analyses. Point biserial correlations are inappropriate for variables with more than two groups.

Note. ***p < .001, **p < .01

Analysis of offenders who refuse the CoMHSS and those producing invalid responses. It was not possible to establish with certainty the compliance rates of the offenders with the CoMHSS because offenders who refused the assessment were not always recorded. However, records do indicate that 68 of 1370 male offenders asked to complete the measures refused to do so. Of those who completed the measures, 93 produced invalid BSI forms either because they circled the same response on each item or because they left out too many items on a scale.

An analysis was conducted comparing the known refusers to those who produced valid responses to determine whether the refusers significantly differed from those who successfully completed the assessment. The results indicate that those who were known refusers were significantly more likely to abuse alcohol ($\chi^2(1) = 6.69, p = .01$) and drugs ($\chi^2(1) = 7.64, p = .006$), but they did not differ significantly from completers with respect to their education level, their Aboriginal status, their risk or need rating, their offence profile or

whether they have a current mental health problem. Further research will need to determine whether the pattern holds but these preliminary results suggest that there is no pattern of refusal related to Aboriginal ethnic status or mental health status that would compromise conclusions based on the assessment. Quite similar results were obtained in an additional analysis conducted on the offenders who produced invalid responses. Offenders with higher risk ($\chi^2(2) = 9.63, p = .008$) and need ratings ($\chi^2(2) = 13.30, p = .001$), those who abuse alcohol ($\chi^2(1) = 3.92, p = .048$) and drugs ($\chi^2(1) = 8.57, p = .003$) are marginally more likely to produce valid responses suggesting that they may be willing to provide an accurate picture of their need for mental health services. Sex offenders also tend to provide more valid forms ($\chi^2(1) = 3.50, p = .061$).

In general, offenders with valid responses seem to be those who would more likely benefit from mental health treatment. In this study, offenders with higher risk and need scores, those who abuse alcohol or drugs, those with mental deficiencies, and possibly sex offenders tend to provide more valid responses. This may be because these groups of offenders perceive the assessment as relevant to them, or as an opportunity to communicate that they require assistance. Drug offenders are somewhat more likely to have invalid forms (10% of drug offenders' forms are invalid while only 6% of non drug offenders' forms are invalid, $p = .01$). Producing a valid form does not appear to be related to education level ($\chi^2(1) = 1.26, p = .262$), Aboriginal status ($\chi^2(1) = 1.78, p = .182$) or a past ($\chi^2(1) = 0.03, p = .853$) or current ($\chi^2(1) = 0.33, p = .567$) mental health diagnosis. Over time it will be important to monitor whether some characteristics of offenders may be related to having difficulty completing the assessment since this could limit conclusions that could be drawn on offenders' mental health needs.

Most reception centres had similar rates of invalid forms except for Grande Cache and Drumheller where over 20% of the tests administrations were invalid. All the other reception centers had rates varying from 3.1% (RTC-Ontario) to 8.4% (Stony Mountain).

Co-occurrence of substance abuse problems and mental health concerns. There is a literature demonstrating high rates of co-occurring mental health and substance abuse problems among offender populations. Swartz and Lurigio (1999) for example, found that among their sample of jail detainees with a lifetime diagnosis of a severe mental illness or an

antisocial personality disorder, 89% had a co-morbid substance dependence or abuse problem.

Determining a formal substance abuse diagnosis was not possible during the CoMHISS pilot but the CASA supplies very detailed information on the extent of offenders' drug and alcohol use and the level of dependence. Peters, Greenbaum, Steinberg, Carter, Ortiz, Fry, & Valle (2000) have shown that results from the ADS (a component test of the CASA that measures alcohol dependence) are closely related to DSM IV diagnoses of substance abuse problems. In this current study, co-occurrence of a substance abuse disorder and a mental health concern was analysed by assessing the percentage of CoMHISS respondents who had either GSI or DHS T-scores at or over 65 and had scores on the ADS, DAST and PRD at levels suggesting substantial to severe levels of abuse. A second analysis determined rates of co-morbidity using a more liberal formula that set the criterion for a substance abuse disorder as ratings of at least moderate (on the ADS and DAST) or "some problems" on the PRD.

Table 17 presents the results by individual substance abuse measures and an overall analysis in which a substance abuse problem as assessed by any of the three substance abuse measures was taken as an indication of a substance abuse disorder. A stringent estimate of the rate of substance abuse disorders and a T-score at or above 65 on the CoMHISS Global Severity Index produces an estimate of co-occurring disorders of about 53% while the rate increases to 69% using a more liberal cut off for a substance abuse disorder. The rate of substance abuse problems for offenders screened in as having a mental health problem based on the CoMHISS is significantly higher than for those offenders who were not screened in using either the conservative ($\chi^2(1) = 63.28, p < .001$) or liberal criterion for a diagnosis of substance abuse ($\chi^2(1) = 35.77, p < .001$). When the data are analysed looking only at offenders with serious substance abuse problems we again see a strong link between substance abuse and mental health problems. Seventy-eight percent of offenders who have a substantial to severe dependence on alcohol report having mental health symptoms, while the rates are somewhat lower for those with serious drug problems at 58%. These results are preliminary but they do indicate that those with higher levels of psychological distress are more likely to have substance abuse problems. Further research is required that would

determine the rate of co-occurring mental health and substance abuse disorders by applying a standardised procedure for assessing mental health diagnoses.

Table 17

Estimates of Co-occurring Disorders Using CoMHISS and CASA Results

	Offenders Screened-in Due to Psychological Symptoms N = 467	Offenders Not Screened In N = 735
	% (n)	% (n)
ADS		
- Substantial to Severe	11.6 (54)	2.0 (15)
- Moderate to Severe	22.3 (104)	7.9 (58)
PRD		
- Quite a Few to A Lot of Problems	32.5 (152)	19.2 (141)
- Some to A Lot of Problems	45.8 (214)	33.9 (249)
DAST		
- Substantial to Severe	33.0 (154)	15.0 (110)
- Moderate to Severe	48.2 (225)	33.3 (245)
Either ADS or DAST or PRD		
- Substantial to Severe	53.3 (249)	29.4 (216)
- Moderate to Severe	69.4 (324)	51.3 (377)

Discussion

Based on results of the Global Severity Index (GSI) of the Brief Symptom Inventory (BSI), the initial pilot of the Computerised Mental Health Inventory Screening System (CoMHISS) demonstrated that over one-third (38.4%) of incoming federally sentenced male offenders report experiencing significant psychological distress. A less conservative cut-off would increase the rate to over 50%. Although the pilot sample demonstrated that 44% of Aboriginal men reported high levels of distress relative to 37.6% of non-Aboriginal men, this was not a significant difference.

This significant rate of symptomology among male offenders as measured by the BSI component of the CoMHISS was corroborated by the results of the Depression Hopelessness Suicide (DHS) measure. The GSI and DHS were generally in agreement regarding offenders identified as distressed. However, 3% of respondents scored at or above the cut off on the DHS Depression scale but scored lower on the GSI. If respondents scoring at or above the cut off on either measure were identified for further assessment, a total of 40.6% of the incoming population of male offenders in the present sample would have been identified as needing further follow up and, potentially, further services.

The rate of offenders scoring at or above the chosen cut off score on the screening measures varies across regional reception centres but all reception centres have at least 20% or more of offenders scoring above this cut-off on the GSI (See Appendices A through I). These high rates are not outside the range reported by the developer of the BSI on various sub-clinical samples (Derogatis, 1993). It should be noted that the CoMHISS is administered within 90 days of offenders being admitted to a federal penitentiary, a time that is likely to be highly stressful. A preliminary analysis of the relationship of the results of CoMHISS and time in reception prior to test administration, however, did not show that the scores for those who took the assessment earlier during the reception period were appreciably higher than those of offenders completing the assessment later. It is possible that administrations conducted later in the sentence after offenders have moved from the reception centres and been placed in the general institutions might reveal lower rates of distress. Given that a primary goal of the administration of CoMHISS is to identify offenders who may need

intervention immediately on entry into the federal system, a later administration of the screening would not fulfil this requirement.

It is important to note that estimates of psychological distress in the CSC population based on incoming offenders on new sentences at reception centres may actually underestimate rates of distress among all incarcerated offenders. Descriptive statistics were presented demonstrating that offenders in custody have higher need levels and more indications of mental health problems based on OIA data than offenders coming into CSC on a new sentence.

Almost 5,000 federally sentenced offenders are admitted to CSC on new sentences a year. Because some reception centres initiated the assessment procedures after the pilot began, during the one year period of the pilot of the CoMHISS, only about 1,300 offenders were assessed. A comparison of the CoMHISS respondents with those who did not take the assessment revealed no pattern of differences between the two groups confirming that CoMHISS respondents were representative of the total population of offenders who came into CSC in that one year period.

It was not possible to assess the completion rate for the measures. However, for those known to have refused the assessment or those who completed invalid responses, there was no relationship of refusal to education level, mental health status based on OIA indicators or to Aboriginal status. Higher rates of invalid forms in two institutions point to the importance of staff using a standard test administration protocol that encourages participation and monitors test taking behaviour.

Supplementary analyses suggest that there are high rates of co-occurring disorders within the incoming federal male population. Most offenders scoring at or above the cut-off scores on either the Depression scale on the DHS or the GSI scale on the BSI also had significant problems with substance abuse. Their rates of substance abuse are significantly higher than those of offenders who scored below the cut-off. Further research is required to determine the extent to which substance abuse problems complicate intervention planning for those with mental health concerns.

The mental health strategy in CSC requires that offenders reporting significantly high rates of distress based on the results of the CoMHISS be evaluated by a mental health professional in the reception centres to determine if further intervention is required. There is

currently no standardised follow up testing procedure in place; chief psychologists at each of the reception centres determine the nature of the follow-up testing. A standardised assessment procedure and an automated system recording those who refused assessment would assist in establishing the prevalence of mental disorder in CSC as well as the validity of chosen cut off scores on the CoMHISS measures. The large number of male respondents who have completed these assessment measures at reception and the unique characteristics of the federal population argue for the development of CSC-specific norms. These norms have been established in this study but further research is required to determine which scores are meaningful to the selection of offenders for follow up services. Norms specific to federally sentenced women offenders will also need to be established when a sufficient number will have completed the measures.

The easily modifiable nature of the centralized programming module allows for several future adjustments to be made to the CoMHISS that will increase its utility. The addition of supplementary tests that could assess cognitive ability, attention deficit disorder and neurological/neurophysiological functioning are some areas that are being explored. Amalgamation of the mental health data with data from the computerised substance abuse assessment tool would allow CSC to flag offenders with co-occurring disorders. It is still not known what impact high rates of reported psychological distress have on the institutional and community adjustment of offenders. Further research is needed that would not only validate the CoMHISS screening measures against clinical interview findings but also relate the scores to offenders' behaviour in the institutions and on conditional release. This project of research will provide CSC with important information on the relationship of psychological distress and other indicators of psychological problems with key corporate results.

References

- Aroian, K.J., Patsdaughter, C., Levin, A. & Gianan, M.E. (1995). Use of the Brief Symptom Inventory to Assess Psychological Distress in Three Immigrant Groups. *International Journal of Social Psychiatry, 41*, 31-46.
- Correctional Service of Canada. (2006). *The Changing Federal Offender Population: Profiles and Forecasts*, 2006. Ottawa, ON: Correctional Service of Canada.
- Correctional Service of Canada. (2008-2009). Unpublished raw data. Retrieved August 14, 2008, April 1, 2009 and May 4th from Correctional Service of Canada Offender Management System.
- Conoley, J. C. & Kramer, J. J. (1989). *The Tenth Mental Measurements Yearbook* (pp. 111-113). Lincoln, NE: University of Nebraska Press.
- Derogatis, L. R. & Spencer, P. M. (1982). *The Brief Symptom Inventory (BSI): Administration, and Procedures Manual-I*. Baltimore, MD: Clinical Psychometric Research.
- Derogatis, L. R. (1993). *BSI Brief Symptom Inventory. Administration, Scoring, and Procedures Manual* (4th Ed.). Minneapolis, MN: National Computer Systems.
- Irving, J., Taylor, K. & Blanchette, K. (2002). Results of an Evaluation of the Intensive Treatment Program at Burnaby Correctional Centre for Women Offenders. Ottawa, ON: Correctional Service of Canada.
- Jackson, D. N. (1989). *Basic Personality Inventory Manual*. London, ON: Sigma Assessment Systems.
- Kunic, D. & Grant, B.A. (2006). Computerized Assessment of Substance Abuse (CASA): Results from the Demonstration Project. Ottawa, ON: Correctional Service of Canada.
- Kroner, D.G., & Weekes, J. R. (1996). Balanced Inventory of Desirable Responding: factor structure, reliability, and validity with an offender sample. *Personality and Individual Differences, 21*(3), 323-333.
- Lanyon, R. I., & Carle, A.C. (2007). Internal and External Validity of Scores on the Balanced Inventory of Desirable Responding and the Paulhus Deception Scales. *Educational and Psychological Measurement, 67*(5), 859-876.

- Mills, J. F. & Kroner, D. G. (2004). A new instrument to screen for depression, hopelessness and suicide in offenders. *Psychological Services, 1*, 83–91.
- Mills, J. F. & Kroner, D. G. (2005). Screening for suicide risk factors in prison inmates: Evaluating the efficiency of the Depression, Hopelessness, and Suicide Screening Form (DHS). *Legal and Criminal Psychology, 10*, 1-12.
- Mills, J. F., Reddon, J. R., & Kroner, D. G. (2009). *Construct validity and factor structure of the Depression Hopelessness and Suicide Screening Form (DHS): A cross validation study*. Paper under review.
- Mills, J. F., Morgan, R. D., Reddon, J. R., Kroner, D. G., & Steffan, J. S. (under review). *Depression, Hopelessness, and Psychache: Testing Models in the Screening for Suicide Risk*. Paper Under Review.
- Mills, J. F., Green, K., & Reddon, J. R. (2005). An evaluation of the Psychache Scale on an offender population. *Suicide and Life-Threatening Behavior, 35*, 570-580.
- Mills, J. F., & Kroner, D. G. (2008). Predicting Suicidal Ideation with the Depression Hopelessness and Suicide Screening Form (DHS). *Journal of Offender Rehabilitation, 47*, 74-100
- Pagé, C. & Kroner, D. G. (2008). The Depression, Hopelessness, and Suicide Screening Form: A preliminary proofing study on Canadian female offenders. Ottawa ON: Correctional Service of Canada.
- Paulhus, D. L. (1999). Paulhus Deception Scale: User's Manual. Toronto: Multi-Health Systems Inc.
- Peters, R.H., Greenbaum, P.E., Steinberg, M.L, Carter, C.R., Ortiz, M.M, Fry, B.C., Valle, S.K. (2000). Effectiveness of screening instruments in detecting substance use disorders among prisoners. *Journal of Substance Abuse Treatment, 18* (2000) 349–358.
- Selzer, M. L. (1971). The Michigan Alcoholism Screening Test: The quest for a new diagnostic instrument. *American Journal of Psychiatry, 127*, 1653-1658.
- Shinkfield, A.J, Graffam, J. & Meneilly, S. (2009). Co-Morbidity of Conditions Among Prisoners. *Journal of Offender Rehabilitation, 48*:350–365.
- Skinner, H.A. (1982). The Drug Abuse Screening Test. *Addictive Behaviours, 7*, 363-371.

- Skinner, H. A. & Horn, J.L., (1984). *Alcohol Dependence Scale (ADS): User's Guide*. Toronto: Addiction Research Foundation.
- Stewart, L. (2006) Perceived stress, self-efficacy and depression, hopelessness, and suicidal ideation in a group of incarcerated women. Unpublished Ph.D. Dissertation.
- Swartz, J.A. & Lurigio, A.J. (1999). Psychiatric Illness and Comorbidity Among Adult Male Jail Detainees in Drug Treatment. *Psychiatric Services* 50:1628-1630.
- Ulzen, T.P.M. & Hamilton, H. (1998). The nature and characteristics of psychiatric comorbidity in carcerated adolescents. *Canadian Journal of Psychiatry*, 43, 57-63.
- Wood, W. D. (1986). Patterns of Symptom Report on the Brief Symptom, *Psychological Reports*, 58, 427-431.

Appendices

Appendix A: CoMHSS Results: Drumheller Institution Reception

Brief Symptom Inventory Subscale	Mean Raw Scale Score N = 83	T- score $\geq 60^+$ % (n)	T- score ≥ 65 % (n)
Somatization	0.25	15.6 (13)	9.6 (8)
Obsessive-Compulsive	0.52	20.5 (17)	15.7 (13)
Interpersonal Sensitivity	0.32	17.1 (14)	9.8 (8)
Depression	0.50	38.6 (32)	20.5 (17)
Anxiety	0.38	22.0 (18)	15.9 (13)
Hostility	0.33	31.2 (16)	7.2 (6)
Phobic Anxiety	0.13	24.1 (20)	8.4 (7)
Paranoid Ideation	0.56	32.5 (27)	14.4 (12)
Psychoticism	0.44	42.1 (35)	30.1 (25)
Global Severity Index	0.40	26.5 (22)	20.5 (17)
Positive Symptom Total	13.28	28.9 (24)	16.9 (14)
Positive Symptom Distress Index	1.38	19.2 (16)	12.0 (10)

Note: In the following tables N on the scales can vary due to missing data.

⁺ T-Scores for this and all subsequent tables on the BSI are based on Non Patient Norms.

Sub Scale	N	Mean	T-score ≥ 60 % (n)	T-score ≥ 65 % (n)
Depression	98	3.61	14.2 (14)	12.2 (12)
Hopelessness	102	0.99	20.2 (20)	14.3 (14)
Suicide Items				
Endorses ≥ 1 % (n)				
Cognitive Suicide Indicator	101	0.10	6.9 (7)	
Current Ideation Indicator	103	0.06	3.9 (4)	
Historical Suicide Indicator	103	0.46	21.4 (22)	

Paulhus Deception Scale Subscale	Mean (N = 102)	T-score ≥ 70		T-score ≤ 30	
		n	%	n	%
Impression Management	7.36	13	12.7		
Self-Deceptive Enhancement	5.38	29	28.4		
Total	12.73	41	40.2	1	1

Appendix B : CoMHSS Results: Edmonton Institution Reception

Brief Symptom Inventory Subscale	Mean Raw Scale Score N = 13	T-score \geq 60 % (n)	T-score \geq 65 % (n)
Somatization	0.54	38.5 (5)	23.1 (3)
Obsessive-Compulsive	0.72	38.5 (5)	30.8 (4)
Interpersonal Sensitivity	0.50	23.1 (3)	23.1 (3)
Depression	0.64	46.2 (6)	23.1 (3)
Anxiety	0.58	46.2 (6)	30.8 (4)
Hostility	0.43	30.8 (4)	15.4 (2)
Phobic Anxiety	0.23	38.5 (5)	15.4 (2)
Paranoid Ideation	0.69	38.5 (5)	30.8 (4)
Psychoticism	0.60	61.5 (8)	61.5 (8)
Global Severity Index	0.57	46.2 (6)	38.5 (5)
Positive Symptom Total	16.08	38.5 (5)	23.1 (3)
Positive Symptom Distress Index	1.74	53.9 (7)	38.5 (5)

Sub Scale	N	Mean	T-score ≥ 60 % (n)	T-score ≥ 65 % (n)
Depression	12	4.42	25.0 (3)	25.0 (3)
Hopelessness	13	0.77	15.4 (2)	7.7 (1)
Suicide Items				
Endorses ≥ 1 %(n)				
Cognitive Suicide Indicator	12	0	0	0
Current Ideation Indicator	13	0	0	0
Historical Suicide Indicator	13	0.77	38.5 (5)	

Paulhus Deception Scale Subscale	Mean (N = 13)	T-score ≥ 70		T-score ≤ 30	
		n	%	n	%
Impression Management	6.31	1	7.7		
Self-Deceptive Enhancement	4.35	2	15.4		
Total	10.67	2	15.4	0	0

Appendix C : CoMHISS Results: Grande Cache Institution- Reception

Brief Symptom Inventory Subscale	Mean Raw Scale Score N = 49	T-score \geq 60 % (n)	T-score \geq 65 % (n)
Somatization	0.43	32.6(16)	22.4(11)
Obsessive-Compulsive	0.69	34.7(17)	20.4(10)
Interpersonal Sensitivity	0.57	32.7(16)	24.5(12)
Depression	0.77	51.0(25)	40.8(20)
Anxiety	0.54	32.7(16)	24.5(12)
Hostility	0.37	20.4(10)	10.2(5)
Phobic Anxiety	0.30	44.8(22)	14.3(7)
Paranoid Ideation	0.95	59.2(29)	30.6(15)
Psychoticism	0.81	67.4(33)	63.3(31)
Global Severity Index	0.63	55.1(27)	40.8(20)
Positive Symptom Total	17.78	48.9(24)	26.5(13)
Positive Symptom Distress Index	1.74	55.1(27)	34.7(17)

Sub Scale	N	Mean	T-score ≥ 60 % (n)	T-score ≥ 65 % (n)
Depression	46	4.67	23.9(11)	21.7(10)
Hopelessness	46	1.24	28.3(13)	17.4(8)
Suicide Items				
Endorses ≥ 1 %(n)				
Cognitive Suicide Indicator	50	0.12	8.0 (4)	
Current Ideation Indicator	47	0.02	2.1 (1)	
Historical Suicide Indicator	47	0.57	23.4 (11)	

Paulhus Deception Scale Subscale	Mean (N = 51)	T-score ≥ 70		T-score ≤ 30	
		n	%	n	%
Impression Management	6.57	3	5.9		
Self-Deceptive Enhancement	3.53	6	11.8		
Total	10.10	9	17.6	1	2

Appendix D : CoMHISS Results: Stony Mountain Institution-Reception

Brief Symptom Inventory Subscale	Mean Raw Scale Score N = 98	T-score \geq 60 % (n)	T-score \geq 65 % (n)
Somatization	0.51	31.6 (31)	22.4 (22)
Obsessive-Compulsive	0.87	38.8 (38)	32.7 (32)
Interpersonal Sensitivity	0.60	38.8 (38)	25.5 (25)
Depression	0.57	39.8 (39)	32.7 (32)
Anxiety	0.58	30.6 (30)	23.5 (23)
Hostility	0.54	39.8 (39)	13.3 (13)
Phobic Anxiety	0.40	45.9 (45)	24.5 (24)
Paranoid Ideation	0.78	43.9 (43)	28.6 (28)
Psychoticism	0.61	53.0 (52)	45.9 (45)
Global Severity Index	0.62	45.9 (45)	39.8 (39)
Positive Symptom Total	18.26	42.8 (42)	31.6 (31)
Positive Symptom Distress Index	1.64	47.9 (47)	26.5 (26)

Sub Scale	N	Mean	T-score ≥ 60 % (n)	T-score ≥ 65 % (n)
Depression	92	3.95	23.9 (22)	17.4 (16)
Hopelessness	99	1.31	28.3 (28)	18.2 (18)
Suicide Items				
Endorses ≥ 1 %(n)				
Cognitive Suicide Indicator	106	0.04		3.8 (4)
Current Ideation Indicator	107	0.02		1.9 (2)
Historical Suicide Indicator	104	0.36		14.4 (15)

Paulhus Deception Scale Subscale	Mean (N = 104)	T-score ≥ 70		T-score ≤ 30	
		n	%	n	%
Impression Management	7.32	13	12.5		
Self-Deceptive Enhancement	4.73	25	24		
Total	12.05	35	33.7	0	0

Appendix E : CoMHISS Results: Prairie Region Totals of All Reception Centres

Brief Symptom Inventory Subscale	Mean Raw Scale Score N = 243	T-score \geq 60 % (n)	T-score \geq 65 % (n)
Somatization	0.41	26.7 (65)	18.1 (44)
Obsessive-Compulsive	0.71	31.8 (77)	24.4 (59)
Interpersonal Sensitivity	0.49	29.3 (71)	19.8 (48)
Depression	0.59	41.9 (102)	29.6 (72)
Anxiety	0.50	28.9 (70)	21.5 (52)
Hostility	0.43	28.4 (69)	10.7 (26)
Phobic Anxiety	0.28	37.9 (92)	16.5 (40)
Paranoid Ideation	0.73	42.8 (104)	24.3 (59)
Psychoticism	0.59	52.7 (128)	44.9 (109)
Global Severity Index	0.54	41.1 (100)	33.3 (81)
Positive Symptom Total	16.34	39.1 (95)	25.1 (61)
Positive Symptom Distress Index	1.58	39.9 (97)	23.9 (58)

Sub Scale	N	Mean	T-score ≥ 60 % (n)	T-score ≥ 65 % (n)
Depression	248	3.97	20.5 (51)	16.9 (42)
Hopelessness	260	1.15	24.3 (63)	15.8 (41)
Suicide Items				
Endorses ≥ 1				
% (n)				
Cognitive Suicide Indicator	269	0.07	5.6 (15)	
Current Ideation Indicator	270	0.03	2.6 (7)	
Historical Suicide Indicator	267	0.45	19.9 (53)	

Paulhus Deception Scale Subscale	Mean (N = 270)	T-score ≥ 70		T-score ≤ 30	
		n	%	n	%
Impression Management	7.14	30	11.1	-	-
Self-Deceptive Enhancement	4.73	62	23	-	-
Total	11.87	87	32.2	2	0.7

Appendix F : CoMHISS Results: Ontario Region Reception Millhaven

Brief Symptom Inventory Subscale	Mean Raw Scale Score N = 218	T-score \geq 60 % (n)	T-score \geq 65 % (n)
Somatization	0.49	31.2 (68)	23.9 (52)
Obsessive-Compulsive	0.77	38.0 (81)	27.7 (59)
Interpersonal Sensitivity	0.53	31.0 (67)	23.1 (50)
Depression	0.78	60.1 (130)	35.6 (77)
Anxiety	0.60	28.5 (62)	25.3 (55)
Hostility	0.39	23.5 (51)	10.1 (22)
Phobic Anxiety	0.29	38.9 (85)	18.3 (40)
Paranoid Ideation	0.84	49.1 (106)	30.1 (65)
Psychoticism	0.76	63.3 (138)	52.3 (114)
Global Severity Index	0.63	48.6 (106)	33.9 (74)
Positive Symptom Total	17.55	42.2 (92)	25.2 (55)
Positive Symptom Distress Index	1.75	55.5 (121)	35.8 (78)

Sub Scale	N	Mean	T-score ≥ 60 % (n)	T-score ≥ 65 % (n)
Depression	203	4.82	29.0 (59)	23.6 (48)
Hopelessness	209	1.44	28.3 (59)	18.7 (39)
Suicide Items				
Endorses ≥ 1 %(n)				
Cognitive Suicide Indicator	228	0.07	5.3 (12)	
Current Ideation Indicator	224	0.03	2.8 (6)	
Historical Suicide Indicator	219	0.37	16.0 (35)	

Paulhus Deception Scale Subscale	Mean (N = 228)	T-score ≥ 70		T-score ≤ 30	
		n	%	n	%
Impression Management	7.67	45	19.7	-	-
Self-Deceptive Enhancement	4.62	43	18.9	-	-
Total	12.27	83	36.4	4	1.8

Appendix G: CoMHIS Results Pacific Institution- Reception

Brief Symptom Inventory Subscale	Mean N = 395	T-score \geq 60 % (n)	T-score \geq 65 % (n)
Somatization	0.56	38.5 (152)	28.4 (112)
Obsessive-Compulsive	0.92	44.7 (176)	33.0 (130)
Interpersonal Sensitivity	0.71	37.9 (149)	28.5 (112)
Depression	0.76	53.4 (211)	35.4 (140)
Anxiety	0.77	43.0 (170)	33.9 (134)
Hostility	0.49	30.9 (122)	13.4 (53)
Phobic Anxiety	0.43	47.6 (188)	28.1 (111)
Paranoid Ideation	0.86	47.8 (189)	28.4 (112)
Psychoticism	0.77	64.6 (255)	48.1 (190)
Global Severity Index	0.71	51.9 (205)	38.5 (152)
Positive Symptom Total	20.69	48.9 (193)	33.7 (133)
Positive Symptom Distress Index	1.62	44.3 (175)	27.6 (109)

Sub Scale	N	Mean	T-score ≥ 60 % (n)	T-score ≥ 65 % (n)
Depression	337	4.95	31.4 (106)	25.5 (86)
Hopelessness	346	56.03	28.9 (100)	18.8 (65)
Suicide Items				
Endorses ≥ 1 %(n)				
Cognitive Suicide Indicator	367	0.07	5.7 (21)	
Current Ideation Indicator	364	0.08	4.4 (16)	
Historical Suicide Indicator	366	0.62	23.2 (85)	

Paulhus Deception Scale Subscale	Mean (N = 397)	T-score ≥ 70		T-score ≤ 30	
		n	%	n	%
Impression Management	7.21	61	15.4	-	-
Self-Deceptive Enhancement	3.96	62	15.6	-	-
Total	11.16	113	28.5	1	0.3

Appendix H : CoMHSS Results: Quebec Regional Reception Centre

Brief Symptom Inventory Subscale	Mean N = 187	T-score \geq 60 % (n)	T-score \geq 65 % (n)
Somatization	0.62	40.3 (75)	31.7 (59)
Obsessive-Compulsive	0.64	33.4 (62)	21.0 (39)
Interpersonal Sensitivity	0.50	29.0 (54)	22.0 (41)
Depression	0.73	53.5 (100)	41.7 (78)
Anxiety	0.66	37.1 (69)	33.3 (62)
Hostility	0.38	26.2 (49)	8.0 (15)
Phobic Anxiety	0.42	47.1 (88)	22.5 (42)
Paranoid Ideation	0.84	49.2 (92)	30.5 (57)
Psychoticism	0.77	67.9 (127)	56.1 (105)
Global Severity Index	0.66	52.9 (99)	38.5 (72)
Positive Symptom Total	19.32	46.4 (87)	31.4 (59)
Positive Symptom Distress Index	1.69	51.3 (96)	29.4 (55)

Sub Scale	N	Mean	T-score ≥ 60 % (n)	T-score ≥ 65 % (n)
Depression	34	4.06	29.4 (10)	20.6 (7)
Hopelessness	37	1.19	24.3 (9)	18.9 (7)
Suicide Items				
Endorses ≥ 1 %(n)				
Cognitive Suicide Indicator	42	11.9	9.5(4)	
Current Ideation Indicator	40	10.0	7.5 (3)	
Historical Suicide Indicator	38	29.0	15.8 (6)	

Paulhus Deception Scale Subscale	Mean (N = 40)	T-score ≥ 70		T-score ≤ 30	
		n	%	n	%
Impression Management	9.01	12	30	-	-
Self-Deceptive Enhancement	4.81	8	20	-	-
Total	13.80	16	40	1	2.5

Appendix I : CoMHISS Results: Atlantic Reception

Brief Symptom Inventory Subscale	Mean N = 151	T-score \geq 60 % (n)	T-score \geq 65 % (n)
Somatization	0.75	52.4 (79)	41.1 (62)
Obsessive-Compulsive	1.12	56.6 (85)	43.3 (65)
Interpersonal Sensitivity	0.85	46.4 (70)	37.1 (56)
Depression	0.99	59.7 (89)	48.3 (72)
Anxiety	0.93	53.0 (80)	43.7 (66)
Hostility	0.72	46.0 (69)	22.0 (33)
Phobic Anxiety	0.50	54.0 (81)	30.7 (46)
Paranoid Ideation	1.19	66.6 (100)	45.3 (68)
Psychoticism	0.94	68.0 (101)	60.7 (91)
Global Severity Index	0.93	64.9 (98)	52.3 (79)
Positive Symptom Total	23.50	59.6 (90)	46.4 (70)
Positive Symptom Distress Index	1.96	68.2 (103)	51.0 (77)

Sub Scale	N	Mean	T-score ≥ 60 % (n)	T-score ≥ 65 % (n)
Depression	134	6.13	38.0 (51)	35.8 (48)
Hopelessness	139	1.86	35.2 (49)	23.7 (33)
Suicide Items				
Endorses ≥ 1 %(n)				
Cognitive Suicide Indicator	153	0.07	6.5 (10)	
Current Ideation Indicator	149	0.07	6.0 (9)	
Historical Suicide Indicator	146	0.90	31.5 (46)	

Paulhus Deception Scale Subscale	Mean (N = 160)	T-score ≥ 70		T-score ≤ 30	
		n	%	n	%
Impression Management	7.29	17	10.6	-	-
Self-Deceptive Enhancement	4.73	38	23.8	-	-
Total	12.01	49	30.6	0	0

Appendix J : Point-Biserial Correlations of Offender Profile Variables and the BSI

Profile Variable	BSI Subscale								
	Somatiza- tion	Obsessive Compul- sive	Inter- personal- Sensitivity	Depres- sion	Anxiety	Hostility	Phobic Anxiety	Paranoid Ideation	Psych- otism
Violent Offence	.083*	.114**	.121**	.139**	.124**	.095**	.111**	.104**	.136**
Education < Grade 10	.107**	.095*	.054	.045	.074	.079	.101*	.095*	.071
Unstable Job History	.094*	.133**	.096*	.113**	.118**	.120**	.136**	.081	.089*
Abuse Alcohol	.153**	.191**	.143**	.161**	.160**	.202**	.156**	.129**	.155**
Abuse Drugs	.023	.104**	.057	.071	.061	.128**	.079	.046	.059
ADS	.208**	.271**	.221**	.205**	.237**	.28**	.26**	.226**	.256**
PRD	.104**	.146**	.107**	.092**	.128**	.199**	.144**	.128**	.147**
DAST	.124**	.218**	.159**	.183**	.197**	.25**	.182**	.167**	.208**
Past Mental Health Diagnosis	.167**	.263**	.216**	.256**	.254**	.191**	.246**	.210**	.263**
Current Mental Health Diagnosis	.180**	.286**	.217**	.278**	.280**	.239**	.268**	.222**	.268**
Mental Deficiencies	.128**	.208**	.193**	.146**	.190**	.154**	.189**	.161**	.169**
Overall Risk	.089*	.152**	.130**	.138**	.118**	.100*	.115**	.089*	.134**
Overall Need	.134**	.207**	.182**	.200**	.187**	.195**	.182**	.145**	.190**

Note: * p < .01, ** p < .001

Note: r values for Overall Risk and Overall Need are the square-root of R² values from ANOVA analyses. Point biserial correlations are inappropriate for variables

with more than two groups.

Note: r values for ADS, PRD and DAST are Pearson correlations.

**Appendix K: CSC Norms for Male Offender Raw Scores, Associated T- Scores and Percentage of Offenders Scoring Higher
(N=1197)**

SOM	O-C	I-S	DEP	ANX	HOS	PHOB	PAR	PSY	GSI	PSDI	PST	T-Score	%
											0.77	35.00	93.32
										0.45	0.83	36.00	91.92
										1.80	0.89	37.00	90.32
										3.16	0.95	38.00	88.49
							0.01			4.51	1.01	39.00	86.43
							0.09		0.04	5.86	1.07	40.00	84.13
	0.06		0.03				0.17	0.06	0.11	7.21	1.14	41.00	81.59
	0.14		0.11	0.02			0.25	0.14	0.17	8.56	1.20	42.00	78.81
0.05	0.23	0.05	0.19	0.11	0.02		0.33	0.22	0.24	9.91	1.26	43.00	75.80
0.12	0.32	0.13	0.27	0.19	0.09		0.40	0.29	0.30	11.27	1.32	44.00	72.57
0.19	0.40	0.21	0.35	0.27	0.15	0.04	0.48	0.37	0.36	12.62	1.38	45.00	69.15
0.26	0.49	0.29	0.43	0.36	0.21	0.11	0.56	0.45	0.43	13.97	1.44	46.00	65.54
0.33	0.57	0.38	0.51	0.44	0.28	0.17	0.64	0.52	0.49	15.32	1.50	47.00	61.79
0.40	0.66	0.46	0.59	0.52	0.34	0.24	0.71	0.60	0.55	16.67	1.57	48.00	57.93
0.48	0.75	0.54	0.67	0.61	0.40	0.31	0.79	0.67	0.62	18.02	1.63	49.00	53.98
0.55	0.83	0.62	0.75	0.69	0.47	0.38	0.87	0.75	0.68	19.37	1.69	50.00	50.00
0.62	0.92	0.70	0.83	0.77	0.53	0.45	0.95	0.83	0.75	20.73	1.75	51.00	46.02
0.69	1.01	0.78	0.91	0.86	0.59	0.52	1.03	0.90	0.81	22.08	1.81	52.00	42.07
0.73	1.05	0.83	0.95	0.90	0.63	0.55	1.07	0.95	0.84	22.80	1.85	52.53	40.00
0.76	1.09	0.86	0.99	0.94	0.66	0.58	1.10	0.98	0.87	23.43	1.87	53.00	38.21
0.82	1.17	0.93	1.06	1.01	0.71	0.64	1.17	1.05	0.93	24.58	1.93	53.85	35.00
0.83	1.18	0.95	1.07	1.02	0.72	0.65	1.18	1.06	0.94	24.78	1.94	54.00	34.46
0.90	1.26	1.03	1.15	1.11	0.79	0.72	1.26	1.13	1.00	26.13	2.00	55.00	30.85
0.92	1.29	1.05	1.17	1.13	0.80	0.74	1.28	1.15	1.02	26.47	2.01	55.25	30.00
0.97	1.35	1.11	1.23	1.19	0.85	0.79	1.34	1.21	1.07	27.48	2.06	56.00	27.43
1.02	1.41	1.17	1.29	1.25	0.90	0.84	1.40	1.27	1.11	28.50	2.11	56.75	25.00

CSC Norms for Male Offender Raw Scores, Associated T-Scores and Percentage of Offenders Scoring Higher (continued)

SOM	O-C	I-S	DEP	ANX	HOS	PHOB	PAR	PSY	GSI	PSDI	PST	T-Score	%
1.04	1.44	1.19	1.31	1.27	0.91	0.86	1.41	1.29	1.13	28.84	2.12	57.00	24.20
1.11	1.52	1.27	1.39	1.36	0.98	0.93	1.49	1.36	1.19	30.19	2.18	58.00	21.19
1.14	1.56	1.31	1.43	1.39	1.00	0.95	1.52	1.40	1.22	30.75	2.21	58.42	20.00
1.18	1.61	1.35	1.47	1.44	1.04	0.99	1.57	1.44	1.26	31.54	2.24	59.00	18.41
1.25	1.70	1.44	1.55	1.52	1.10	1.06	1.65	1.52	1.32	32.89	2.31	60.00	15.87
1.28	1.73	1.46	1.58	1.55	1.13	1.09	1.68	1.54	1.34	33.38	2.33	60.36	15.00
1.32	1.78	1.52	1.63	1.61	1.17	1.13	1.73	1.59	1.39	34.24	2.37	61.00	13.57
1.39	1.87	1.60	1.71	1.69	1.23	1.20	1.80	1.67	1.45	35.59	2.43	62.00	11.51
1.45	1.94	1.66	1.78	1.76	1.28	1.25	1.87	1.73	1.50	36.70	2.48	62.82	10.00
1.46	1.95	1.68	1.79	1.77	1.29	1.27	1.88	1.75	1.51	36.95	2.49	63.00	9.68
1.54	2.04	1.76	1.87	1.86	1.36	1.33	1.96	1.82	1.58	38.30	2.55	64.00	8.08
1.61	2.13	1.84	1.95	1.94	1.42	1.40	2.04	1.90	1.64	39.65	2.61	65.00	6.68
1.68	2.21	1.92	2.03	2.02	1.48	1.47	2.11	1.98	1.71	41.00	2.68	66.00	5.48
1.71	2.25	1.96	2.07	2.06	1.51	1.50	2.15	2.01	1.73	41.61	2.70	66.45	5.00
1.75	2.30	2.01	2.11	2.11	1.55	1.54	2.19	2.05	1.77	42.35	2.74	67.00	4.46
1.82	2.38	2.09	2.19	2.19	1.61	1.61	2.27	2.13	1.83	43.70	2.80	68.00	3.59
1.89	2.47	2.17	2.27	2.27	1.67	1.68	2.35	2.20	1.90	45.05	2.86	69.00	2.87
1.96	2.56	2.25	2.35	2.36	1.74	1.74	2.43	2.28	1.96	46.41	2.92	70.00	2.28
2.00	2.60	2.29	2.40	2.40	1.77	1.78	2.47	2.32	2.00	47.14	2.95	70.54	2.00
2.03	2.64	2.33	2.43	2.44	1.80	1.81	2.50	2.36	2.02	47.76	2.98	71.00	1.79
2.10	2.73	2.41	2.51	2.52	1.86	1.88	2.58	2.43	2.09	49.11	3.04	72.00	1.39
2.17	2.82	2.49	2.59	2.61	1.93	1.95	2.66	2.51	2.15	50.46	3.11	73.00	1.07
2.20	2.85	2.52	2.62	2.64	1.95	1.97	2.69	2.54	2.18	50.96	3.13	73.37	1.00
2.24	2.90	2.58	2.67	2.69	1.99	2.02	2.74	2.59	2.22	51.81	3.17	74.00	0.82
2.31	2.99	2.66	2.75	2.77	2.05	2.08	2.81	2.66	2.28	53.16	3.23	75.00	0.62
2.38	3.07	2.74	2.83	2.86	2.12	2.15	2.89	2.74	2.34	54.52	3.29	76.00	0.47
2.45	3.16	2.82	2.91	2.94	2.18	2.22	2.97	2.82	2.41	55.87	3.35	77.00	0.35
2.52	3.25	2.90	2.99	3.02	2.25	2.29	3.05	2.89	2.47	57.22	3.41	78.00	0.26
2.59	3.33	2.98	3.07	3.11	2.31	2.36	3.13	2.97	2.54	58.57	3.48	79.00	0.19
2.67	3.42	3.07	3.15	3.19	2.37	2.43	3.20	3.05	2.60	59.92	3.54	80.00	0.13

**Screen Reader Descriptions for Graphics & Figures
(For Visually Impaired Individuals)**

Figure 1. Frequency of Respondents Completing CoMHISS as a Function of the Number of Days Between Admission and CoMHISS Administration.

This bar chart reflects the times during the reception period when the CoMHISS assessments are completed. The chart shows that most offenders are assessed by the 30th day in reception, with only a handful being assessed from day 40 to 90. The time period when the largest group of assessments are completed is in the first 2 weeks.