Measuring Level of Function in Mentally Ill Prison Inmates: A Preliminary Study

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The need to portray accurately the level of functioning and severity of psychiatric symptoms among mentally ill offenders (MIOs) is paramount from several perspectives. The prison environment may cast aspersions on the reliability and validity of commonly used functional assessment tools. In addition, these tools do not capture environment-specific areas that may be of interest to the courts, clinicians, community mental health centers, and other correctional facilities. Male MIOs (n = 61) who had been treated for at least three months in a (male) Washington state prison mental health program were evaluated using clinical assessment tools, data abstraction from medical records, and structured assessments from correctional officers. Clinical assessments occurred at their current site of incarceration. The semistructured clinical assessments had high construct validity and correlation for psychiatric symptoms and diagnosis. The ability of evaluators to determine accurately relative treatment compliance within the prison was low compared with the reports from correctional staff, particularly with respect to attendance at programs. In general, the officers did not recognize lack of program participation and reclusive behavior as potential signs of mental illness. Despite a significant history of psychiatric symptoms severe enough to warrant inpatient treatment, 70 percent of the MIO individuals were functioning reasonably well in a general population. A fully informed functional assessment of MIOs likely requires input from both clinicians and correctional officers.

It is estimated that up to 15 to 20 percent of the 1.8 million adults incarcerated in U.S. county jails, state prisons, and federal institutions have a mental illness severe enough to impair functioning.[1-3] The ability to evaluate functioning of identified mentally ill offenders (MIOs) within state correctional facilities is needed for many reasons: follow-up for mentally ill individuals within the system, identification of individual and program needs, and part of program evaluation and assessment. As noted in the health services literature, the environmental context is a crucial variable to consider when choosing a set of assessment tools.[4,5] Yet little exists in the literature describing a

systematic approach to functional assessments specifically within the correctional setting.

The purpose of this study was to evaluate the functioning of inmates who had been treated at a male medium-security residential mental health program. The group had been identified previously as needing services offered through the program and had completed at least three months in the unit. Finally, the subjects were still incarcerated in a Washington state prison.

The mental health treatment program and some results have been described previously.[6] The program aims to provide an intermediate level of care for imprisoned offenders with mental illness and therefore establishes an option between intensive, acute care and general prison population settings. Because the program aims to prepare participants for the general prison setting, a measure of functioning after treatment is crucial.

Numerous functional assessment tools have been well described in the literature.[7-11] A Referral Decision Scale (RDS) to screen mentally ill jail detainees also has been described.[12] Despite strengths of available assessment tools, each has shortcomings for the

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Table 1 Summary of Assessment Tools and Domains to Evaluate Functioning in MIO

Assessment Tool (Total No. of Questions)	Psychiatric Symptoms	No. of Questions		
		Severity of medical problems	Treatment compliance	Role as a prison inmate
BPRS (18)	16	1	1	
GAF (1)	Psychological, social, and occupational functioning on a continuum			
FAMIO (36)	19	4	3	10
FAR (24)	4	2	(Unable to separate categories) 18	

determination of overall functioning within a correctional facility. Widely used functional assessment tools contain questions that are irrelevant in the correctional context, such as financial management or cooking skills.[10,11] Questions have been raised about the positive and negative predictive value of the RDS[13] and its validity[14] for diagnostic purposes. In addition, although the RDS has its root in the Diagnostic Interview Schedule,[15] it has been suggested that the stress of the correctional environment may skew responses to depression and anxiety symptoms.[12]

A model to evaluate inmate functioning systematically could not be found in the literature and thus was derived from collaboration between the Department of Corrections (DOC) and the multidisciplinary group from the University of Washington (UW). For the purposes of this project, representation for the latter was included from the Department of Psychosocial and Community Health, the Department of Psychiatry, the Washington Institute for Mental Illness Research and Training, and the School of Public Policy and Management. Group members had knowledge of the residential mental health program, stemming from its inception to the present, and shared decades of experience within the correctional field.

In light of experience, collaborative efforts, and the focus on treatment for mental illness, the team attempted to capture several perspectives of an inmate's functioning: the severity of current psychiatric symptoms, the severity of medical needs, and the ability to function specifically within the correctional environment.

Methods

Inmates who were treated in the mental health program from its inception and who were still within Washington state DOC facilities were eligible for follow-up, provided they had been in the program for at least three months. Inmates were interviewed for 45 to 60 minutes at their current institution. By definition, all subjects were therefore male and had

been convicted of a felony crime and sentenced to more than 12 months incarceration in a state prison.

Assessment tools consisted of the following (Table 1): Brief Psychiatric Rating Scale (BPRS); The Global Assessment of Functioning (GAF); Functional Assessment of MIOs (FAMIO); and Functional Assessment of Residents (FAR). The BPRS[7-9] is a brief, 18-question mental health tool that has been well validated in the literature (except among incarcerated people). The GAF[7] is the widely used scale in conjunction with the American Psychiatric Association's *Diagnostic and Statistical Manual-IV* (DSM-IV). The FAMIO is a 42-question tool that attempts to determine level of functioning specifically among MIOs. The following domains are included in the FAMIO: (1) psychiatric signs and symptoms (with further breakdown for indicators of psychosis, depression or other mood disorders, and anxiety); (2) medical problems; (3) treatment compliance for the psychiatric illness; and (4) program compliance. Finally, the FAR is unique in design elements and concept formulations that attempt to capture the knowledge specifically held by correctional staff. Functioning within the correctional environment was categorized as follows in the FAR: (1) activities of daily living (ADLs); (2) medical problems; (3) social behavior; (4) vocational activities (interest); and (5) mental health issues.

Assessment Protocol

Three clinician raters participated in the study. The formal education of the raters was at least at a graduate level. All had extensive experience in correctional mental health and were members of the UW/DOC collaboration. No formal training on the use of the FAMIO was undertaken for the study. All three clinician raters interviewed the first nine subjects. Raters were encouraged not to refine their rankings in the FAMIO for these subjects. Two clinicians interviewed all other subjects and a single score on each FAMIO question was attained by agreement. For all subjects, a single value for

each question on the BPRS was recorded. Medical records were reviewed after the clinical interview. Information on diagnosis (if available) and medications were recorded for each subject.

Correctional staff on two different shifts in the subjects' current unit were contacted for participation through the institution's superintendent. As part of a staff meeting, at least one clinician rater met with the staff. The project purpose and the use of the FAR were explained and discussed. No formal training on the FAR was provided. The assessment tool was distributed and then collected through the shift captain. Completed forms were then mailed back to the study team.

All inmates provided written informed consent to participate in this study. The study protocol was reviewed and approved by the DOC and the Human Subjects Review Committee at the University of Washington.

Statistical Analysis

SPSS 7.0 (Win 97) was used as the database and analytical software package for the results. For purposes of analysis and presentation, scores on the analogous BPRS and FAMIO questions were reduced to one of the following categories: psychotic symptoms, symptoms of major depression, symptoms of elevated mood, and symptoms of anxiety. Further, each question was recoded according to one of the following severity markers: not present, mild, moderate, or severe. The Spearman Correlation Coefficient (r) was calculated to compare the two tools.[11, 16]

Two members of the correctional staff, either officers from day and evening shifts or one officer and the inmate's counselor, were asked to complete the FAR. Where both tools were returned and completed, analysis was performed with the mean of the two scores. Although this might cause the subjects to look better than they actually are, this is unlikely.* Finally, presentation of the FAR according to categories of functioning required that all questions have the same number of possible answers. For this reason, the average scores (where applicable) from each FAR question were rescored mathematically as if there were five possibilities. This procedure allowed for calculation of the groups' average scores in each of the five main areas captured by the FAR.

Results

Sixty-one inmates provided consent for the interviews and medical record review. At least one FAR tool was returned on 58 subjects, and two or more FAR tools were returned on 51 subjects. All three clinician raters assessed the first nine subjects. The remainder were assessed by two of the raters.

Demographics and Background

All subjects were male and over the age of 20 years. As shown in Table 2, the average age was 40.3 ± 9.3 years, with more than three-fourths of the sample less than 50 years old ($n = 52$, 85%). Over two-thirds of the sample was Caucasian ($n = 42$, 69%). The general population wings at the site of the mental health program was the most frequent current site of the subjects, followed by the largest state prison ($n = 19$, 31%, and $n = 13$, 21%, respectively). Although all men had been convicted of a felony crime, sex-related crimes were the most common ($n = 27$, 44%). The length of incarceration before entry into the treatment program ranged from 2 months to 19 years, with a median of 3 years (±6 years) before program entry. They spent an average of 13 months (±8 months) at the program and an average of 19

Table 2 Demographic and Psychiatric Information of Individuals Followed from Residential Mental Health Treatment Program

	Number of Individuals (%) $n = 61$
Age group (years)	
<20	0
20–29	7 (11)
30–39	23 (38)
40–49	22 (36)
50–59	7 (11)
>60	2 (3)
Race/ethnicity	
Black	14 (23)
Caucasian	42 (69)
Hispanic	1 (2)
Asian	2 (3)
Other	2 (3)
Psychiatric diagnosis[a]	
Schizophrenia	13 (21)
Schizoaffective disorder	7 (11)
Psychosis NOS	9 (15)
Bipolar disorder	3 (7)
Major depression	10 (16)
Anxiety disorder	2 (3)
Other/unclear diagnosis	18 (30)

[a] The primary diagnosis was derived by a combination of clinical presentation, current and past psychiatric medications, and (where located) psychiatric diagnosis in the medical record. Note that the number of individuals adds to more than $n = 61$ and 100% because some individuals had more than one Axis I diagnosis.

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* That is, all reported numbers are the result of "regression toward the mean." For an individual, it might mean that dysfunction is no longer apparent. However, because the standard deviation of the values from the reported means is small for individuals, the cumulative effect of significantly skewing the results toward high levels of function for the group is unlikely.[16]

months (±10 months) had elapsed since they left the mental health program.

The primary Axis I diagnosis of individuals is shown in Table 2. The primary diagnosis was derived by a combination of clinical presentation, current and past psychiatric medications, and (where located) psychiatric diagnosis in the medical record. Eighteen of 29 individuals with a diagnosis consistent with a primary psychotic disorder (62%) were congregated at the two most frequent sites for the subjects. Five of the 10 individuals with (medical record) diagnoses of major depression were located at the same site as the mental health program.

Reliability and Validity of the FAMIO

Symptom clusters were analyzed using the following groups: psychotic symptoms, symptoms of major depression, symptoms of elevated mood, and symptoms of anxiety. Interrater reliability was calculated on the nine triple-rated subjects. The highest reliability coefficient was noted within the treatment compliance/correctional functioning domain ($R = .930$). The lowest was noted for anxiety symptoms ($R = .823$), followed by mood symptoms ($R = .840$). Interrater reliability also was reasonably strong for psychotic symptoms ($R = .916$).

Scores for the first nine triple-rated subjects also were used to calculate the intraclass correlation (ICC) and the internal consistency of the FAMIO. All questions within each respective FAMIO group had an ICC of greater than .70. Numerous questions within the psychotic symptom class and correctional functioning had ICCs of greater than .90. Internal consistency, described by Chronbach's α-correlation coefficient,[9, 11] ranged from depressive symptoms ($\alpha = .75$) to treatment compliance/correctional role ($\alpha = .63$). The overall correlation for the FAMIO was $\alpha = .86$.

The content of the FAMIO was established by consultation with correctional mental health professionals, forensic psychiatrists, and health service researchers. Questions within the correctional domain were worded and anchored to capture adverse events or poor functioning. Psychiatric symptomatology was described and anchored in a manner identical to the BPRS.[7, 8] However, the order of the questions on the FAMIO scoring sheet was markedly different from the BPRS. Medical functioning questions were developed from existing tools[7–9] and consultation.

Construct validity was calculated for all subjects using the BPRS as the criterion marker of psychiatric

symptoms. The Pearson correlation coefficient on the FAMIO and BPRS for each of the symptom categories is shown in Table 3. Excellent agreement with elevated mood symptoms was noted ($R = 1.00$; $p = .01$). The overall correlation between the two assessment tools was .906 ($p = .07$).

Mental Health Functioning

As shown in Table 3, 27 individuals (44%) scored "moderate or severe" on at least one relevant question concerning psychotic symptoms on the FAMIO. Likewise, 49 percent ($n = 30$) had evidence of moderate or severe anxiety during the interview. Fifty-five inmates (90%) scored moderate or severe on at least one of the outlined FAMIO groups.

Of the 27 individuals with moderate or severe psychotic symptoms (using all available FAMIO questions), 25 were currently on antipsychotic medication (93%). Sixteen of the 21 individuals with symptoms of major depression (76%) were on a mood stabilizer (including antidepressants), and 11 (52%) also were on antipsychotic medication.

Results from the FAR are shown in Table 4 by category domain and individual questions. For eight subjects (13%), it was indicated that the inmate did not have an apparent mental illness or serious behavioral problem. There also were six subjects (10%) about whom the officers did not have enough knowledge concerning the mental health issues to complete this section.

Table 3 Correlation Between the FAMIO and BPRS for Categories of Psychiatric Symptoms

	FAMIO	BPRS	Correlation (R)	Significance (p value)[a]
Psychotic symptoms			.949	.05
None	32	29		
Mild	2	4		
Moderate	13	13		
Severe	14	15		
Depressive symptoms			.791	.21
None	22	21		
Mild	18	21		
Moderate	20	18		
Severe	1	1		
Elevated mood symptoms			1.000	.01
None	29	32		
Mild	15	15		
Moderate	11	11		
Severe	5	3		
Overall			.906	.01

[a] Two-tailed p test with significance set at $\alpha = .01$.

Table 4 Functioning Within the Facilities as Evaluated by Correctional Officers Using the FAR

	Mean/Maximum Score	Mode[a]	Standard Deviation
ADL			
Bathing	4.8/5	5	0.51
Feeding	3.9/4	4	0.33
Toilet use	2.9/3	3	0.00
Cell cleanliness	3.7/4	4	0.52
Caring for own property	2.9/3	3	0.36
Ambulation	3.9/4	4	0.40
Medical problems			
Staff attention	4.0/4	4	1.43
Sensory impairment	2.7/3	3	0.69
Social behavior			
Social interactions	2.9/4	3	0.61
Respect for authority	3.6/4	4	0.73
Response to directions	3.1/4	4	0.73
Nature of relationships: inside facility	2.7/4	3	0.94
Nature of relationships: outside facility	4.0/4	4	2.10
Expression of hostility	3.4/5	2	1.18
Assaultive behavior	3.9/4	4	0.69
Self-destructive behavior	3.6/4	4	0.70
Sexual behavior	2.6/3	3	0.22
Paranoia	2.9/4	4	1.08
Vocational activities			
Level of interest	2.64/4	3	0.92
Mental health			
Presence of mental illness	2.5/4	4	1.12
Awareness of mental illness[b]	4.0/4	4	1.44
Participation	1.6/3	3	1.11
Medication compliance	2.4/5	Not filled in	1.72
Case management	1.8/5	1	1.59

[a] Mode is the most common score in the sample.
[b] The remaining questions were to be answered only if the answer to the preceding question (on the presence of mental illness) was not "No apparent mental illness or serious behavioral problems."

Functioning within the Correctional Setting

Table 4 shows the mean scores, the most common score (mode), and standard deviation for the average response (where two completed FAR instruments were returned) for each of the FAR questions. The response pattern indicated few/little problems with ADLs and some problems with social behavior. Relatively larger standard deviations (variations in the means of the group) were seen with questions concerning expression of hostility and paranoia. Overall, the correlation between the FAR and the treatment/program compliance class on the FAMIO was .621 (p = .471).

Figure 1 schematically shows the results of average mean scores and areas of functioning as defined by the FAR. The maximum possible value for any area is five (indicating maximum function), and all areas

other than mental health functioning are at least an average of four.

Global Assessment of Functioning

The mean GAF score for the group was 53/100 (±11), which would indicate "moderate [psychiatric] symptoms or moderate difficulty in social, occupational, or school functioning." The lowest score a subject received was 25 ("behavior is considerably influenced by delusions or hallucinations. . .") and the maximum was 72 ("if symptoms are present, they are transient and expectable. . .").

Severity of (Nonpsychiatric) Medical Issues

Results from both the FAR and the FAMIO revealed that on average, the subjects did not have severe medical issues. From the FAMIO, 11 percent (n = 7) had moderate or severe medical problems. Correlation with the FAR indicated that these medical issues did not require time and attention from correctional staff.

Discussion

Prudent resource allocation, program evaluation, and individual assessments all depend on having reliable and valid methods to determine the functioning of MIOs. Conservatively, there are approxi-
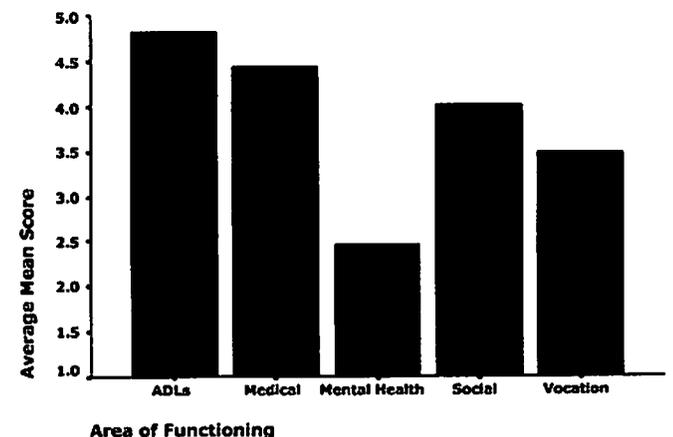

Figure 1. Average mean scores of individuals reflecting various areas of functioning within the correctional facilities (all scores based on a minimum value of 1 = dysfunction, to 5 = no problems in this area).

mately 89,000 MIOs in state prisons† across the country.[1, 3] Eventually, most will be released into the community.[18, 19] Many will receive psychiatric evaluations and treatment while incarcerated and a few will receive treatment in a prison psychiatric unit. Yet, to our knowledge, no widely accepted assessment tool(s) exists that evaluates critical components of functioning within the correctional setting.

Several perspectives were used to determine the level of functioning of inmates who received treatment in the mental health unit in an effort to increase both reliability and validity of the observations. Perspectives included those from the inmates themselves, members of the UW/DOC collaboration, and correctional officers familiar with the individual inmates. Assessment tools used for the project included both those widely accepted (BPRS and the GAF) and those developed locally (the FAMIO and the FAR). The process involved interviews and review of medical records.

Despite the attempt to capture several different perspectives of functioning, several potential limitations exist with this study. First, as suggested by the demographics, the sample probably is not indicative of all male mentally ill prisoners. However, the sample may well be broadly representative of those who receive psychiatric inpatient treatment while incarcerated in prison. Second, because all subjects had been identified previously as mentally ill, there a potential outcome bias exists, particularly by the clinician raters. Finally, the sample size was relatively small, potentially exaggerating reliability and validity data. Nonetheless, both the sample used and the findings suggest that further work using this methodology is warranted.

The apparent prevalence and severity of current psychiatric symptoms among those in this sample was not surprising given these individuals were identified previously as MIOs and had received treatment in a mental health program. In general, the symptoms rated moderate or severe were well correlated with both the primary Axis I diagnosis and the type of psychiatric medication taken by inmates.

Although the GAF results also indicate the group has moderate symptoms or dysfunction, it does not

provide the level of detail afforded by the other tools. Specifically, it is a community-appropriate numeric scale without markers appropriate for the correctional environment. The ranges are operationalized in terms of psychiatric symptoms or life adjustment, using the main domains of social and work behavior. The lack of information one can discern specifically about, for example, housing and need for staff attention within a correctional facility, is important.

The FAR results clearly indicate that (despite relatively severe mental illness) the group attends to common daily activities (cleanliness, bathing, ambulation, etc.) at a high level. Although both social behavior and vocational interest were slightly below optimum functioning from the perspective of correctional officers, this might well be a function of the underlying mental illness. Notably, on average it was recognized that the inmate appeared mentally ill (but may not be diagnosed) or the mental illness was in question, but the staff recognized serious behavioral problems.

The inmates who were recognized as having a mental illness and/or a serious behavioral problem by correctional staff were found to have their lowest area of functioning within program and case management participation. Again, this may be a function of the symptoms from the underlying mental illness. Despite these apparent areas of dysfunction, it was noted that 70 percent of the subjects were integrated successfully into the general population.

Clinically evident symptoms of mental illness were documented in a cross-sectional manner (during the interview). Overall, similar results were found with the FAMIO and the BPRS. However, greater discernment of the "mildly" depressed group by the BPRS was likely possible with the FAMIO because additional questions that address potential symptoms specifically while incarcerated were present. As expected merely from adding questions,[16] the FAMIO had a greater validity with the medical records than the BPRS, although the differences appeared slight. Therefore, the fundamental advantage of the FAMIO would appear to be the clinician's perspective on (psychosocial) role functioning within a correctional facility.[5, 11]

In summary, it would appear that the combination of the FAMIO and the FAR addresses the three main domains (psychiatric symptoms, medical severity, and correctional role/treatment compliance) in the most comprehensive manner. Further studies are

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† There are 1.8 million adults incarcerated in jails, prisons, and federal facilities times 33 percent to account for the prison population times 15 percent as a conservative estimate of MIOs =89,000 MIOs in state prisons.[1–3, 17]

appropriate to reduce these two assessment tools to a "core set" of unduplicated questions and to investigate the issue of potential data burden on staff.

Finally, it is clear that the use of any instrument or combination of instruments in an institutional context also depends on the roles and training of staff. Using calculated standard deviations on questions answered by more than one reviewer on the FAR, for example, could indicate what requires specific attention at staff training sessions. Likewise, it is believed from previous studies (unpublished data) that although high interrater reliability for the FAMIO is possible after training with community mental health case managers, this work has yet to be conducted among correctional officers.

Acknowledgments

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