

# Relating Competency Status to Functional Status at Discharge in Patients with Chronic Mental Illness

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This study assessed performance on a screening test of competency to consent to treatment, the Hopkins Competency Assessment Test (HCAT), in a population diagnosed with chronic mental illness, and examined the relationship between HCAT performance and functional status at discharge. We hypothesized that patients with chronic mental illness who failed the HCAT would also have problems in performing activities of daily living at the time of discharge. Forty-three patients on a short-stay psychiatric service were administered the following screening tests: (1) Mini-Mental State Exam (MMSE), on admission; (2) the HCAT, approximately four to five days after admission; (3) At discharge, the Milwaukee Evaluation of Daily Living Skills (MEDLS), and the Occupational Therapy Task Observation Scale (OTTOS). Analyses included correlation between the competency measure HCAT and the functional measures; sensitivity, specificity, and positive and negative predictive values of the HCAT score; and odds ratio and chi-square analysis. The HCAT was highly correlated with the MEDLS and OTTOS. The HCAT was not sensitive in identifying impairment on either functional measure, but when patients failed the HCAT, they were likely to be functionally impaired at discharge. The negative predictive value of the HCAT was greater than the positive predictive value. Patients who failed HCAT were significantly more likely to have an MMSE score lower than 27 and less than 12 years of school. Seven of forty-three (16.3%) patients failed a screening measure of competency, indicating that there is a subgroup of chronically mentally ill patients who may not understand issues of informed consent. Patients who failed the HCAT were more likely to be functionally impaired at discharge. Cognitive impairment and low education are important factors in failure to pass competency screening. Competency screening along with screening for cognitive impairment can be useful in identifying patients at risk for poor functional status at discharge.

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Patients with chronic mental illness represent a treatment challenge to community psychiatry programs. These patients suffer from severe, chronic, and at times, multiple mental illnesses that require ongoing psychiatric assessment and treatment.<sup>1</sup> Because the severity and chronicity of illnesses in this population are associated with impairment of social and occupational functioning, these individuals have persistent disabilities that need ongoing social services and supportive care.<sup>2</sup> Many treatment interventions directed to the chronically mentally ill have focused on improving the functioning of the individual outside of the hospital environment through psychosocial support programs. Thus, in addition to treatment of the manifest psychiatric symptoms of mental illness, treatment has been directed at improving the general functional independence of the patient. Reducing the disability associated with mental illness enables the individual to comply more successfully with psychiatric treatment and to function more appropriately in familial and societal roles.

In addition to concern about the functional competency of psychiatric patients, attention has been focused on a more specific aspect of competence: the competency to consent to treatment and to initiate advance directives. The Patient Self-Determination Act (PSDA), effective December 1991, requires health care providers at hospitals and other sites to supply all adult patients with written information advising them of their rights, to explain the provider's policy for implementing those rights, and to document any advance directives supplied by pa-

tients.<sup>3</sup> These regulations, which require hospitals to address issues of resuscitation, extraordinary life-sustaining measures, and medical directives, have focused attention on the capacity of the patient to make decisions regarding their care. Janofsky and Rovner<sup>4</sup> found that prior to the onset of the PSDA, substantial numbers of both competent and incompetent individuals lacked surrogate decision-making authority, suggesting that the requirements of the PSDA were warranted. However, there is evidence that patients may not comprehend the issues of informed consent and advance directives. Researchers who interviewed 302 patients to assess their understanding and use of advance directives found that patients who said they had completed advance directives did not demonstrate better understanding of these documents than those who had not prepared these documents.<sup>5</sup> These authors concluded that many patients, including some who have completed advance directives, do not fully understand the issues involved in their decisions.

While the issue of competency to refuse treatment is the clinical question more commonly encountered by consulting psychiatrists, the competency to request voluntary psychiatric treatment can be questioned as well. This was recently done by a patient who alleged (after hospital discharge) that his mental illness impaired his capacity to consent voluntarily to treatment and that his treatment, despite his consent at the time of admission, constituted a violation of his rights.<sup>6</sup> The possibility that mentally ill individuals might not be competent to consent to

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participation in psychiatric research studies has prompted the National Alliance of the Mentally Ill to issue guidelines to insure that research participants are able to offer informed consent.<sup>7</sup> A screening instrument for assessing competency to consent to treatment, the Hopkins Competency Assessment Test (HCAT), has been published.<sup>8</sup>

The present research grew out of the experience of treating community psychiatry patients at the Johns Hopkins Hospital. Treating psychiatrists noted that patients often gave inconsistent or inaccurate histories of their illnesses and, in discussions about their conditions, seemed to have difficulty understanding their diagnosis and treatment plan. Patients were often discharged only to be readmitted in short order with exacerbations of the same symptoms. Poor compliance with treatment recommendations seemed to be a factor in the recurrence of illness. It was suspected that under-recognized cognitive impairment was contributing to the poor prognosis of these patients.

The present research addresses the relationship between a measure of competency to consent to treatment and level of functioning at discharge in a population of chronically ill psychiatric inpatients. We hypothesized that patients with chronic mental illness who failed a screening test of competency, the HCAT, would also have problems in activities of daily living at discharge.

### Methods and Analyses

*Methods* This study was conducted on the Meyer 3 ward of the Henry Phipps

Psychiatric Clinic of Johns Hopkins Hospital. All patients had been screened for admission to a short-stay service by a resident and attending psychiatrist. The criteria for admission excluded patients with prior history of prolonged hospitalization, major medical problems, or severe behavior problems requiring specialized services. The typical patient on this unit has multiple diagnoses and requires numerous social supports.

The study was a cross-sectional analysis of characteristics of psychiatric inpatients. Of 109 patients admitted from November 15, 1992 to June 30, 1993, a battery of neuropsychological tests including the Wechsler Adult Intelligence Scale-Revised (WAIS-R; short form) was administered to 72 participants. A Mini-Mental State Exam (MMSE) was administered upon admission, and demographic information was collected including race/ethnicity, education, and sex. Two assessments of functioning at the time of discharge were administered: the Milwaukee Evaluation of Daily Living Skills (MEDLS),<sup>9</sup> a scale of basic living skills designed for use with the chronically mentally ill, and the Occupational Therapy Task Observation Scale (OTTOS),<sup>10</sup> a functional assessment designed for psychiatric patients. Forty-three patients agreed to be administered the HCAT, which consists of a series of written passages describing the elements of informed consent and power of attorney. The narratives are presented at three levels of reading ability, from 12th grade to 6th grade reading level. After reading each passage, the respondent answers six questions requiring 10 answers regarding in-

formed consent and power of attorney. The final score is the number of correct answers obtained after the third reading. Scores of four or above are considered passing. The HCAT was administered several days after admission to allow acute psychiatric illness to be stabilized. Patients were excluded if they were judged to be delirious or the severity of their psychiatric symptoms precluded participation. Forty-three patients agreed to participate, 27 were not tested, and 2 were excluded. Because this was a cross-sectional study, a control population was not used. Informed consent was obtained from each participant after study approval was obtained from the hospital Institutional Review Board.

**Analyses** Correlation coefficients were calculated for the HCAT as well as for age, education, MMSE, MEDLS, and OTTOS. The sensitivity, specificity, and positive and negative predictive value of HCAT score to predict performance on functional measures was calculated. An odds ratio was calculated to estimate the association between failing the HCAT and impairment on the MEDLS functional scale. A chi-square analysis of patient characteristics by HCAT performance was completed.

## Results

Forty-three patients participated in the study. Thirty-five (81%) were African American, 42 (51%) were women, and 20 (46.5%) had less than 12 years of school. Thirty-six patients (84%) passed the HCAT screening test for competency to consent to treatment.

Pearson's correlation coefficients are

**Table 1**  
Correlation Between HCAT<sup>a</sup> and Other Variables

	Pearson <i>r</i>	<i>p</i> Value
Age (year)	-.46	.002
Schooling (years)	.50	.004
OTTOS <sup>b</sup>	.51	.005
MEDLS <sup>c</sup>	.68	<.001
MMSE <sup>d</sup>	.75	<.001

<sup>a</sup> Hopkins Competency Assessment Test.

<sup>b</sup> Occupational Therapy Task Observation Scale.

<sup>c</sup> Milwaukee Evaluation of Daily Living Skills.

<sup>d</sup> Mini-Mental Status Examination.

presented in Table 1. The HCAT score correlated with five variables significantly ( $p < .01$ ): age ( $r = -.46$ ), years of schooling ( $r = .50$ ), OTTOS score ( $r = .51$ ), MEDLS score ( $r = .68$ ), and MMSE ( $r = .75$ ).

Failure on the HCAT (score < 4) identified impairment of functioning at discharge as measured by MEDLS with sensitivity of 50 percent and specificity of 93 percent. Using the OTTOS score to identify functional impairment, a failing HCAT score identified functional impairment with sensitivity of 33 percent and specificity of 93 percent.

The positive predictive value of the HCAT to identify impairment on the MEDLS was 71 percent; the negative predictive value was 86 percent. The positive predictive value of the HCAT to identify impairment on the OTTOS was 28 percent; the negative predictive value was 86 percent.

The relationship between the HCAT and the MEDLS functional score was further measured with the odds ratio: the odds of being impaired on the MEDLS (MEDLS < 35) in incompetent patients

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**Table 2**  
Relationship Between HCAT and MEDLS

Variable Controlled	Odds Ratio <sup>a</sup>	95% Confidence Limits	<i>p</i> Value
None	15.5	2.3–102.8	.005
MMSE	10.5	0.7–165.1	.09
Schooling	15.8	1.9–130.8	.011
Sex	15.8	2.3–106.4	.005
Race/ethnicity	16.2	2.3–112.1	.005
Age	17.5	2.0–155.2	.01

<sup>a</sup>The odds of being impaired on the MEDLS. (i.e., MEDLS score < 35), in incompetent patients (i.e., HCAT < 4) compared with competent patients (i.e., HCAT > 3).

(HCAT < 4) compared with competent patients (HCAT > 3). Odds ratios are presented in Table 2. When no variables were controlled for, the odds ratio was 15.5 ( $p < .005$ ). The odds ratios remained above 15, with significant  $p$  values, when four variables were controlled for: schooling (OR 15.8,  $p < .011$ ), sex (OR 15.8,  $p < .005$ ), race/ethnicity (OR 16.2,  $p < .005$ ), and age (OR 17.5,  $p < .01$ ). Controlling for the MMSE score, however, lowered the odds ratio to 10.5 ( $p < .09$ ).

Patient characteristics of patients who failed the HCAT were compared with those who passed the HCAT using a chi-square test (Table 3). Three characteristics were significantly associated with failing the HCAT: MMSE score below 27 ( $p < .001$ ), less than 12 years of schooling ( $p < .02$ ), and MEDLS functional score below 35 ( $p < .001$ ).

Of those who failed the HCAT, 100 percent had IQ scores < 85; 43 percent of those who passed the HCAT had an IQ < 85. The difference was not significant.

**Table 3**  
Patient Characteristics by HCAT Score

	Percentage of Patients		Statistic
	HCAT > 3 ( <i>N</i> = 36)	HCAT < 4 ( <i>N</i> = 7)	
Sex			
Male	53	53	
Female	47	57	$\chi^2(1) = .2$
Age (year)			
20–29	20	0	
30–39	52	29	
40–49	14	29	
50+	14	42	$\chi^2(3) = 5.3$
Race/ethnicity			
Black	83	71	
Other	17	29	$\chi^2(1) = .5$
Schooling (years)			
6–11	38	86	
12+	62	14	$\chi^2(1) = 5.3$
Diagnosis			
SMI	63	100	
Drug abuse	26	0	
Other	11	0	$\chi^2(2) = 3.8$
MMSE			
27–30	76	0	
16–26*	24	100	$\chi^2(1) = 11.1$
MEDLS			
35–44	86	29	
16–34	14	71	$\chi^2(1) = 10.9$
OTTOS			
120–200	86	71	
100–119 <sup>a</sup>	14	29	$\chi^2(1) = .9$

<sup>a</sup> Impaired.

## Discussion

Seven of 43 (16.3%) participants failed a screening measure of competency to consent to treatment (HCAT), indicating there is a subgroup of chronically mentally ill patients who may not understand issues of informed consent. The patients who failed the HCAT were cooperative and appeared generally competent to engage in discussions regarding their health problems, and if consent had been needed

for medical or surgical treatment, there would have been no obvious reason to suspect their ability to consent.

Performance on the HCAT competency measure correlated significantly with functional performance at discharge; in this population, patients who failed the HCAT screening test of competency were more likely to be functionally impaired at discharge. The HCAT was not sensitive in detecting patients with poor functioning at discharge. However, the HCAT, when failed, was highly specific in identifying poor functioning. This suggests that while the HCAT is best used to measure its intended domain—the understanding of competency issues—individuals who fail the test should be monitored for low functioning at discharge.

Cognitive impairment as measured by MMSE on admission and having less than 12 years of schooling were important factors in the failure to pass competency screening and in having poor performance on functional measures at discharge. Although controlling for MMSE score reduced the odds ratio between the HCAT score and MEDLS, it did not eliminate the association. Competency screening along with screening for cognitive impairment may be useful in identifying patients at risk for poor functional status at discharge. The present data suggest that having less than a high school education and an abnormal MMSE should prompt consideration of a screening testing of competency prior to obtaining informed consent.

A selection bias may have been present among those who chose to participate in the study. It is possible that those partic-

ipants who failed the HCAT were experiencing more severe psychiatric illness at the time of testing. Intelligence may have confounded the relationship between HCAT and functional status. It is possible that the HCAT is biased against individuals with low education, although it is designed to accommodate individuals with a sixth-grade reading ability.

The selective nature of the short-stay inpatient unit from which the participants were recruited may limit the generalizability of the present findings to other clinical settings. However, clinicians serving the urban chronically mentally ill are likely to encounter patients with similar characteristics who may not understand issues of informed consent. Careful assessment of competency to consent should be undertaken in patients with limited education or evidence of cognitive impairment.

In this population of psychiatric patients, cognitive impairment was associated with lower functional status. There is evidence from medical populations that cognitive impairment, independent of age, is associated with longer hospital stays and higher costs. Levenson<sup>11</sup> examined 455 medical inpatients and found 20.2 percent cognitively impaired, 27.9 percent very depressed, and 27.5 percent very anxious. Fifty-one percent were identified as having high levels of psychopathology or pain; these patients had 40 percent longer median hospital stays and 35 percent greater mean hospital costs, but did not differ from other patients in terms of sex, race, age, or diagnosis-related group. Saravay *et al.*<sup>12</sup> examined 321 general hospital patients, shortly after admission, with the MMSE, Zung Depression Inventory, and SCL-90. Depression, anxiety, and “or-

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ganicity" were correlated with longer hospital stays, even after controlling for physical impairment, emergency versus elective admission, or medical versus surgical service. Attention to cognitive impairment has increased over the past decade, and its role in competency issues has been addressed in geriatric populations.<sup>13</sup> The present study suggests that cognitive impairment should also be considered in younger patients when competency issues arise.

In summary, one of six individuals in this population of chronically mentally ill inpatients failed a screening test of competency to consent to treatment. These individuals were more likely to be functionally impaired at discharge. Competency to consent to treatment should be carefully examined in the chronically mentally ill who need to consent to medical or surgical procedures. Individuals who fail an assessment of competency should be closely monitored for reduced functional status at discharge.

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