Predicting Treatment Outcome for Incompetent Defendants

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This study examined the prediction of outcome in a sample of defendants hospitalized for treatment of incompetency. Defendants' demographic characteristics and scores on 18 scales of the Computer-Assisted Determination of Competency to Proceed instrument (CADCOMP) were used to predict competency restoration and length of stay (LOS). During the period of study, almost 90 percent of the defendants were restored to competency after a mean stay of over 280 days. Demographic characteristics were unrelated to outcome. Several CADCOMP scales, including two scales measuring psycholegal ability and one measuring psychopathology, were correlated with both outcome criteria. Discriminant analysis using the CADCOMP scales accurately classified 76.7 percent of the defendants into short and long stay groups. Although promising, the findings are nevertheless consistent with prior research in suggesting that examiners should exercise caution in providing feedback to the courts concerning competency restoration and the period of time needed for treatment.

In a landmark case, *Jackson v. Indiana*,[1] the United States Supreme Court set limits on the duration of hospitalization for incompetent defendants. The court held that a defendant could be hospitalized only for the "reasonable" period of time necessary to determine whether there was a "substantial probability" that the defendant could be restored to competency "in the foreseeable future." Moreover, if restoration were deemed possible, continued hospitalization would be justified only by progress toward the goal of restoration. Notably, the Supreme Court did not specify the length of time that might be considered "reasonable" in any given case.

The *Jackson* decision has had a significant impact on state statutes and procedural rules governing assessment and treatment of incompetency. Current statutes typically require the courts to determine whether a defendant can be restored to competency within a reasonable period of time, a determination usually made on the basis of expert testimony. For example, in Florida an expert who concludes that a defendant is incompetent must make a treatment recommendation to the court. In making

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such a recommendation, the expert must consider 1) the likelihood that the defendant will attain competence under the treatment recommended; 2) the probable duration of treatment; and 3) the probability that the defendant will attain competence to proceed in the foreseeable future [Florida Rule of Criminal Procedure 3.211 (b) (1) (iv)]. Furthermore, Florida statute limits the duration of commitment of incompetent defendants to five years for those charged with felonies and one year for those charged with misdemeanors.

Although mental health experts play a prominent role in treatability decisions, little attention has been given to the abilities of clinicians to make such predictions. Indeed, only three studies have examined prediction of treatment outcome for incompetent defendants. These investigations have used judgments about competency restoration, length of hospitalization, or some combination of the two variables, as outcome criteria. Cuneo and Brelje[2] reported some success in predicting competency restoration for a sample of 78 male defendants treated in an Illinois forensic hospital in 1980. Fifty-eight defendants (74.4%) were restored to competency within one year. Findings suggested that treatment team predictions about competency restoration were correct in 61 (78.2%) cases. All errors of prediction involved individuals who were judged able to be restored but who did not attain fitness within one year of admission. Unfortunately, the authors did not describe the process by which treatment teams arrived at their overall prediction.

Carbonell, Heilbrun, and Friedman[3] attempted to predict who would regain pretrial competency in a sample of male defendants adjudicated as incompetent in Florida between 1984 and 1987. Entering 15 demographic, criminal history, and clinical predictors in a discriminant analysis, Carbonell *et al.* were able to predict competency restoration accurately in 72.2 percent of the cases in a derivation sample (n = 91). However, this accuracy dropped to 59.5 percent in a cross-validation sample (n = 44). The authors were pessimistic about the ability of clinicians to make predictions about competency restoration, and they recommended that clinicians be cautious in offering such opinions.

Nicholson and McNulty[4] examined outcome of hospitalization for incompetent defendants hospitalized in Oklahoma between 1983 and 1987. They reported favorable results with regard to outcome: 1) relatively few defendants (5.3%) were unable to be restored to competency; 2) defendants showed improvement in severity of psychopathology during hospitalization; and 3) length of stay was relatively short (mean = 2 months). Because failure to restore competency was so rare, the authors did not examine multivariate prediction of competency restoration. However, they reported that prediction of defendants' length of stay and severity of psychopathology at discharge were poor. The authors noted that prediction of these variables was hindered because less than optimal predictors were available. In-

deed, both Carbonell *et al.*[3] and Nicholson and McNulty[4] suggested that future research on prediction of competency restoration should include direct measures of subjects' relevant psycholegal abilities, noting that inclusion of such predictors might improve overall-accuracy.

The purpose of the present study was twofold: 1) to provide additional data on prediction of outcome for incompetent defendants; and 2) to provide further data on the validity and utility of a relatively new instrument for assessing competency, the Computer-Assisted Determination of Competency to Proceed instrument or CADCOMP.[5,6] CADCOMP seemed a particularly appropriate measure for investigating the prediction of competency restoration, given the instrument's coverage of topics and promising reliability and validity data. As described in an initial validation study,[5] CADCOMP is an interactive computer-based assessment device designed to collect data relevant to competency directly from a defendant. The instrument includes 272 items that solicit information about a variety of domains, including the defendant's background characteristics (e.g., demographics, educational attainment and experiences, psychiatric and legal history), behavior on the day of the alleged offense, behavior since arrest, current psycholegal ability, and symptoms of psychopathology. All items are presented in True/False, Yes/No, or multiple choice formats, and are answered using a minimum number of keys on a modified keyboard. CADCOMP generates a lengthy narrative report, summarizing the defendant's functioning in a variety of areas.

The initial study[5] indicated that clinicians who read the CADCOMP narrative report agreed on defendants' overall competency status in 88 percent of the cases. Moreover, decisions based on the narrative report accurately predicted external competency criteria (viz., the decision of an experienced forensic psychiatrist and the decision of a panel of evaluators who viewed a videotape of the forensic psychiatrist's interview) with a correct classification rate of 82 percent in each case.

The 18 scales used as predictors in the present research were derived from the CADCOMP item pool on rational/conceptual grounds by Barnard and colleagues.[6] These scales describe the defendant's current psycholegal abilities, current psychopathology, post-arrest behavior, report of circumstances and behavior at the time of the alleged offense, and legal and psychiatric history. Barnard et al.[6] provided empirical support for the conceptual assignment of items to scales, and demonstrated that most of the resulting scales had sufficient item homogeneity (mean interitem correlations ranged from .18 to .56) and scale reliability (alpha coefficients ranged from .47 to .90, and 16 of 18 scales had alpha coefficients greater than .60) to be useful. Moreover, the prior research revealed that, consistent with prediction, scales and items measuring serious psychopathology and psycholegal ability were the best predictors of competency status as measured by several criteria. In

general, scales and items describing a defendant's history and the circumstances of the alleged crime failed to show such associations.

Method

Setting and Subjects Subjects for this study were 133 male defendants who had been ordered to the North Florida Evaluation and Treatment Center (NFETC) as incompetent to stand trial from courts throughout Florida. NFETC is a 210-bed facility in Gainesville, Florida, that is operated by the Florida Department of Health and Rehabilitative Services. Defendants were admitted for treatment between June 14, 1988 and July 22, 1991. Admission to NFETC for treatment implies that all of the defendants in this study had initially been deemed "restorable" by the courts.

Once a defendant has been committed for treatment, the hospital is required to provide periodic reports to the court summarizing the defendant's status. These are typically submitted after six months of treatment and every 12 months thereafter. In principle, the courts are required to have a hearing every time a report is submitted from the hospital; however, this does not occur in practice. Typically, such hearings are held only when a report indicates that the defendant has been restored to competency or the staff assesses the defendant as "not restorable." Upon receipt of such a report, the courts follow the "30-day rule" which requires a hearing within 30 days to render a judgment concerning the defendant's status.

Information on the characteristics of the sample is presented in Table 1. Ninety-nine of these subjects were included in a prior report on CADCOMP by Barnard *et al.*[6] The mean age of the defendants was 36 years (SD = 12.1). As is characteristic of other samples of incompetent defendants reported in the literature,[7-9] the incompetent defendants in this study had few social and economic resources: 88.7 percent were not currently married; 68.4 percent were unemployed at the time of the alleged offense; and 57.9 percent had not completed high school. In addition, most

Table 1
Characteristics of Incompetent Defendants Included in the Present Study (*n* = 133)

Characteristic	*N*	%
Age (years)		
less than 18	3	2.4
18–24	16	12.2
25–34	49	36.9
35–44	41	30.9
45–54	13	9.9
55–64	9	6.9
65–	2	1.6
Ethnic group		
African American	71	53.4
Caucasian	47	35.3
Native American	4	3.0
Hispanic	5	3.8
Asian American	2	1.5
Other	4	3.0
Marital status		
Never married	91	68.4
Separated, widowed, divorced	27	20.3
Married	15	11.3
Education (years)		
0–6	18	13.6
7–9	20	15.1
10–12	74	55.6
more than 12	21	15.9
Employment at time of offense		
Yes	42	31.6
No	91	68.4

Note.—Mean number of years of education was 10.3 (SD = 3.9).

(64.7%) were members of minority groups.

Procedure The procedure for testing has been described previously.[5] Briefly, defendants were tested individually within one month of admission to the hospital (median number of days = 15). A trained technician explained the purpose of the evaluation, obtained the defendant's informed consent to participate, and administered the Wide Range Achievement Test (WRAT). The technician oriented the defendant to the computer for self-administration of the CADCOMP. If the defendant was unable to read, the technician read the CADCOMP questions aloud. In each case, the technician remained in the room to answer any questions. The testing process typically took one to two hours to complete. CADCOMP findings were not made available to hospital staff; hence, the outcome criteria in this study were uncontaminated by exposure to CADCOMP results.

Results

Of the 133 defendants hospitalized as incompetent, 119 (89.5%) were discharged as having been restored to competency by the cutoff date for the end of the study (9/23/92). Of the remaining defendants, nine were still receiving treatment in NFETC and five had been transferred to other facilities for continued treatment. For purposes of this study, these 14 (10.5%) defendants were classified as unable to be restored to competency.

On average, defendants were hospitalized for more than nine months (M = 283.0 days, SD = 272.2). The distribution exhibited positive skew as the median length of stay (LOS) was only 169 days. The numbers of defendants hospitalized for more than three, six, nine, and 12 months were 116 (87.2%), 61 (45.9%), 41 (30.8%), and 32 (24.1%), respectively. As expected, defendants who were unable to be restored to competency remained in the hospital for a longer period of time (M = 825.9 days, SD = 280.9) than defendants restored to competency (M = 219.2, SD = 187.4). Although it is possible that some defendants in our "unable to be restored" group might eventually become competent, the substantial difference in LOS of the two groups supports our classification scheme.

Table 2 provides correlations between defendant characteristics, including demographics and performance on the 18 CADCOMP scales, and the outcome of hospitalization, as indicated by competency restoration and LOS. The pattern of correlations was similar for the two outcome variables. As the table shows, none of the demographic characteristics was correlated with either index of outcome. Four scales exhibited significant correlations with both outcome criteria. Defendants who performed poorly on the Adversarial Process and Courtroom Behavior scales and who endorsed significant psychotic symptoms (as reflected by the Psychotic Features scale) were less likely to be restored to competency during the period of study and had longer periods of hospitalization. In addition, the Alcohol Use Day of Crime scale was inversely related to LOS and

Table 2
Correlations Between Defendant Characteristics and the Outcome of Hospitalization

Characteristic	Outcome of Hospitalization	
	Competency Restoration	Length of Hospital Stay
Demographics		
Age	.02	−.00
Race	−.00	−.15
Marital status	−.08	−.11
Education	−.03	−.06
Employment	.02	−.00
CADCOMP scales		
Psycholegal ability		
Knowledge of adversary process	.19*	.28*
Appropriate courtroom behavior	.27*	.19*
Lawyer—perception	−.08	−.02
Lawyer—action	.03	.12
Psychopathology		
Psychotic features	.34*	.20*
Cognitive dysfunction	.10	.09
Affective disturbance	.13	.08
Post-arrest behavior		
Aggression toward others	.19*	.11
Aggression toward self	.00	.03
Behavior on day of offence		
Drug use at crime	−.06	−.09
Alcohol use at crime	−.17*	−.17*
Psychotic symptoms at crime	.01	−.09
Crime awareness	.08	.09
Psychiatric history		
Alcohol problems	.00	−.12
Drug problems	.01	−.04
Past psychopathology	.02	−.04
Defendant history		
Childhood/educational problems	.11	.09
Criminal history	−.04	−.19*

Note.—Competency restoration was coded as follows: 1 indicates restored; 2, not restored. Higher scores on CADCOMP scales indicate greater dysfunction. * indicates that the correlation reported in the table differed reliably from zero, $p \leq .05$.

restoration. Defendants who reported alcohol use around the time of the offense had shorter hospital stays and were more likely to be restored to competency. One other scale, Other-directed Aggression Since Arrest, was correlated with failed competency restoration. Defendants who reported episodes of aggression toward others while in jail were less likely to be restored to competency. Finally, one scale, Criminal History, was inversely related to LOS. Defendants with a prior criminal record had shorter hospital stays.

Multivariate prediction of competency restoration was not attempted, given the small number of cases in which restoration failed. However, we did attempt to predict LOS, using the 18 CADCOMP scales and five demo-

graphic variables in a multiple regression analysis. Direct multiple regression yielded $R = .51$, $F(23, 109) = 1.66$, $p < .05$. Thus, linear combination of the 23 variables accounted for about 26 percent of the variance in LOS.

One goal of the research was to determine whether the CADCOMP scales could assist clinicians in making judgments about length of hospitalization. Although statutes typically do not define what constitutes a "reasonable" period of time for restoration, we considered a test of the ability of the scales to discriminate between defendants who were discharged within one year and defendants who stayed for one year or more to be meaningful from both clinical and legal standpoints. Therefore, defendants were clustered into short-stay or long-stay groups, and discriminant analysis was used to predict group membership. Notably, all of the defendants who were in our "unable to be restored to competency" group had hospital stays in excess of one year. Thus, this analysis was equivalent to predicting competency restoration within one year, a criterion identical to that of Cuneo and Brelje.[2] Direct discriminant analysis using the 18 CADCOMP scales and five demographic variables produced Wilks' lambda = .74, X^2 (23, n = 133) = 35.7, $p < .05$. Findings were comparable to those from the regression analysis. The Canonical R was .51, indicating that the linear combination of variables accounted for about 26 percent of the variance in group membership.

Perhaps the most important result from a clinical standpoint concerns the classification rate achieved by the linear combination of the variables. This result is reported in Table 3. As the table shows, the analysis produced accurate classifications in 76.7 percent of the cases, including 78.2 percent of the short-stay defendants and 71.9 percent of the long-stay defendants.

Discussion

The purpose of the present investigation was two-fold: 1) to extend previous research on the prediction of treatment outcome for incompetent defendants, and 2) to provide additional data on the validity and utility of a new, computer-assisted instrument for assessing criminal competency. Previous research has suggested that most defendants are able to be restored to competency and that the ability of clinicians to predict competency restoration is poor, at least when compared to the base rate of failed restoration. Some authors have suggested that the use of specific measures of psycholegal ability might improve overall prediction. Hence, the present study examined the predictive power of one such measure, CADCOMP. In addition to providing information about prediction of competency restoration, the findings

Table 3
Multivariate Prediction of Length of Hospitalization: Classification Results

Actual Group Membership	Predicted Group Membership	
	Short-stay	Long-stay
Short-stay	79	22
Long-stay	9	23

Note.—Short-stay indicates hospitalization of less than one year; long-stay, hospitalization of at least one year. Overall Hit Rate, 76.7%.

from this study bear on the validity and utility of the CADCOMP instrument.

Initial research[5] demonstrated that independent raters who reviewed the CADCOMP narrative report agreed on overall decisions about competency, and that decisions based on the CADCOMP narrative report were predictive of external decisions about competency. A subsequent investigation[6] demonstrated that scales assessing a range of defendant characteristics could be developed from the CADCOMP item pool and that most of the scales had reasonable item homogeneity and internal consistency reliability. That research also demonstrated that scales assessing the defendant's knowledge of adversarial proceedings and appropriate courtroom behavior, current severe psychopathology and cognitive dysfunction, and criminal history were the best predictors of external criteria for competency.

The present study examined the accuracy of the CADCOMP scales in predicting two new criteria: defendants' restoration to competency and length of hospital stay. The criteria are meaningful from both clinical and legal standpoints. In the wake of *Jackson v. Indiana*, judicial determination of the probability of competency restoration and the length of time necessary for restoration has been required in most jurisdictions. Such a decision is usually made on the basis of expert testimony, but the ability of clinicians to make such predictions accurately has been challenged.

Consistent with previous reports from other jurisdictions,[2, 4, 7, 10] we found that failure to restore defendants to competency was a rare event. Almost 90 percent of the defendants in our study were determined by the clinical staff to be restored to competency and were discharged as such from the hospital. The remaining defendants were hospitalized past the cutoff date for the end of our study without being discharged as competent; nine of these defendants remained on the forensic unit, and five had been transferred to long-term continuing care units. For purposes of our study, these 14 defendants were classified as "unable to be restored to competency." Unfortunately, we did not have information on the final court determination regarding competency for any of the defendants. It is possible that some of the defendants in our "unable-to-be-restored" group might have achieved competency at some point. Notably, though, these defendants had a mean length of stay of more than two years and three months by the end of the study, compared with just over seven months for defendants discharged after being restored to competency. In any case, no more than 10.5 percent of the defendants in our sample were unable to be restored to competency. As Nicholson and McNulty[4] noted, such a low base rate increases the difficulty of accurately predicting competency restoration.

The present study demonstrated that four CADCOMP scales were significantly correlated with both competency restoration and defendants' LOS. In particular, greater impairment in defendants' knowledge of 1) adversarial proceedings, 2) appropriate courtroom

behavior, and 3) severe psychotic symptoms near the time of admission were associated with more persistent incompetence and hence, a longer period of time necessary to restore competency. Conversely, reported alcohol use at the time of the offense was associated with restoration to competency and a shorter hospital stay. Two scales were correlated with one of the outcome criteria. Aggressive behavior toward others after arrest was associated with failure to restore competency, whereas the presence of a criminal record prior to the instant offense was associated with shorter hospitalization. The overall pattern suggests that greater impairment in psycholegal ability and severe psychopathology are predictive of negative outcomes, whereas a history of criminality and substance use are associated with more positive outcomes.

Interestingly, the first three of these scales (Adversarial Process, Courtroom Behavior, Psychotic Features), had been shown in prior research to be the strongest correlates of concurrent competency as indexed by a variety of criteria. Further, aggression toward others was correlated with severe psychopathology and impaired performance on the psycholegal ability scales, which may account for its association with failed restoration. On the other hand, alcohol use on the day of the offense and criminal history were not correlated with current psychopathology or psycholegal ability; hence the meaning of the correlations between these scales and outcome is unclear. It should be noted, though, a relationship between criminal history and competency has been reported in previous research. This may reflect the impact of prior experience in the legal system or bias on the part of evaluators who may tend to view defendants with a positive criminal history as more competent.[8]

Notably, most CADCOMP scales, especially those assessing historical characteristics (Childhood/Educational Problems, Past Psychopathology, and Self-directed Aggression Since Arrest) and behavior at the time of the alleged offense (Drug Use Day of Crime, Psychotic Symptoms Day of Crime, Crime Awareness), were not predictive of competency restoration or LOS. In addition, two psycholegal ability scales designed to measure aspects of a defendant's relationship with his or her attorney (Active Relationship with Lawyer, Perception of Relationship with Lawyer) were not correlated with long-term outcome. Past research had suggested that these scales were not strong predictors of defendants' competency status. Hence, it is not surprising to find that they are not strong predictors of competency restoration or the length of hospitalization in this sample of incompetent defendants. Finally, two psychopathology scales (Cognitive Dysfunction, Affective Disturbance) were not correlated with long-term outcome. In light of past research on CADCOMP, these two scales appear to be better predictors of concurrent judgments about competency than long-term outcome.

As in prior research,[4] we were unable to attempt multivariate prediction of competency restoration because of the low base rate of failed restoration. How-

ever, we were able to conduct analyses to determine whether CADCOMP scales could predict the duration of hospitalization for incompetent defendants. Multivariate analysis suggested that CADCOMP might prove useful to clinicians who were asked to provide information to the courts concerning the length of time necessary for treatment of incompetency. Multiple regression indicated that a linear combination of the CADCOMP scales and demographics accounted for about 26 percent of the variance in defendants' LOS. In contrast, Nicholson and McNulty[4] had accounted for only about 10 percent of the variance in LOS in a sample of incompetent defendants in Oklahoma. There are two possible explanations for the improved prediction in the present investigation. First, a different set of predictors, including measures of psycholegal ability and symptoms of severe psychopathology, were used in this study. Second, the mean LOS and variability in LOS were substantially greater for incompetent defendants in Florida than in Oklahoma. Oklahoma statute does not specify the "reasonable" period of time an incompetent defendant may be hospitalized, whereas the Florida statute permits hospitalizations of one and five years for defendants charged with misdemeanors and felonies, respectively. The greater variability in LOS would facilitate prediction in the Florida sample. At present, we cannot say which of these alternatives—the use of better predictors or the greater variance in LOS—offers the best explanation for the improved prediction in the present study. In any case, the difference in LOS between the Florida and Oklahoma samples underscores the importance of taking into account the systems within which assessment and treatment of incompetency take place.

In addition to multivariate prediction of days of hospitalization, we also used discriminant analysis to predict whether incompetent defendants would be hospitalized for less than one year or at least one year. As noted previously, this analysis was equivalent to predicting competency restoration within one year in our sample, a criterion identical to that of Cuneo and Brelje.[2] Although the overall classification rate of 76.7 percent was promising, we did not have a large enough sample to permit cross-validation. Hence, the finding should be interpreted with caution. Moreover, the classification rate from the discriminant analysis was not substantially different from the rate that would be achieved by predicting that every defendant could be restored to competency within one year. This pattern is not unusual for prediction of low base rate phenomena; for example, in studies of competency decision-making, a higher hit rate is often obtained by predicting that every defendant is competent rather than using a screening instrument.[11,12] Under such conditions, the decision to use the instrument must be a function of the benefits associated with accurate prediction and the costs associated with various errors of prediction.

In sum, following the suggestions of Carbonell *et al.*[3] and Nicholson and McNulty[4] the present investigation re-

dressed a major deficiency in previous research on prediction of outcome by including defendants' psycholegal abilities as predictor variables. Two of the psycholegal ability scales and one psychopathology scale from CADCOMP indeed proved to be correlated with competency restoration and length of hospital stay. These results underscore the importance of including measures of psycholegal ability in future research on predicting the outcome of treatment for incompetency.

Although the present study identified statistically significant relationships between some aspects of CADCOMP performance and outcome, the findings are nevertheless consistent with prior research[3] in suggesting that examiners should exercise caution in providing feedback to the courts concerning competency restoration and the period of time needed for treatment. As in past research,[4] the base rate of failure to restore competency was extremely low, rendering prediction of restoration difficult. In addition, differences in the systems for assessing and treating incompetency across jurisdictions may limit the generalizability of these findings. Further research is needed to replicate and extend the findings on prediction of length of stay and competency restoration to determine whether psycholegal ability measures such as CADCOMP can assist clinicians in predicting treatment outcome.

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