

# Academic Abilities of Hospitalized Psychiatric Patients

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## Abstract

*Academic abilities of hospitalized psychiatric patients are important because of their impact on patient understanding of treatment, the fact that these abilities are thought to decline over increasing lengths of hospitalization, and the expectation that patients will be able after release to perform basic operations associated with these abilities. This paper describes a study of academic abilities of adult patients hospitalized in Alabama's largest psychiatric facility, to provide demographic information about academic abilities of patients, to determine how these abilities vary with length of stay and to make an assessment of need for adult basic education in the hospital. Results indicated that academic abilities varied as a function of sex, but not of race, marital status, or age. Differences were found between diagnostic groups on all variables measured, and academic ability was negatively correlated with increasing lengths of stay. Over half the patients performed academically at or below sixth grade level. Implications of the findings are discussed.*

Academic ability is an important variable

for the hospitalized psychiatric patient, because of the effect of cognitive functioning on patient understanding and response to hospital treatment programs, and because patients who leave hospital psychiatrically improved are expected to carry out routine functions related to reading, computation and writing. Further academic abilities are thought to decline as length of hospitalization increases.

Little information is available in the literature regarding patients' academic abilities; several studies address cognitively related abilities in psychiatric patients. A study by Bosi (1976), concluded that a number of cognitive and behavioral changes occurred as length of hospitalization increased. Martin, Friedmyer, and Sterne (1977) found that IQ scores of chronically ill schizophrenics were significantly higher than those of acute patients, and that both groups' mean IQ scores remained stable from admission until two years later. Winder (1960)

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reviewed research on schizophrenics' intellectual functioning and concluded that schizophrenics tended to obtain IQ scores that averaged ten points below the standard test mean of 100.

Hoyer, Kafer, Simpson, and Hoyer (1974) found that verbalization in nonverbal and minimally verbal elderly hospitalized chronic schizophrenics could be increased by operant conditioning techniques, thus indicating that these abilities can be improved in the hospital setting by appropriate learning opportunities.

Although none of these studies directly assessed academic abilities they do suggest that this variable might well be a deficiency in hospitalized psychiatric patients. We designed this study, therefore, to determine whether this deficiency in academic achievement did exist in a sample of patients hospitalized in a large state psychiatric facility. The purpose of the study was to obtain information about academic abilities of hospitalized patients as related to specific demographic variables (sex, race, marital status, diagnosis, and length of stay) and to do an assessment of need for academic education among these patients.

#### **The Patient Sample**

Included in the study were a computer-selected random 10% of the hospital's patient population, excluding forensic patients and those under the age of 21.

Of the 118 patients selected, 63 were male and 55 were female. They ranged in age from 20 to 77, with a mean age of 42.4 years. Marital status of patients was 90 single, 10 married, 10 divorced, 5 separated, and 3 widowed or widowers. Racial composition was 60 Caucasian, 49 black, and 9 in other groups.

Patients fell into the following diagnostic categories: 88 schizophrenic, 8 affective disorder; 18 organic brain syndrome; and 4 personality disorders. When grouped according to length of stay in the hospital in five-year increments, 45 patients had been in hospital for five years or less, 23 patients for five to ten years, 13 patients for 11-15 years, 9 patients for 16-20 years, 8 patients for 21-25 years, 9 patients for 26-30 years, 5 patients for 31-35 years, 2 patients for 36-40 years, 1 patient for 41-45 years, and 2 patients for 46-

50 years. The mean educational level recorded for patients in the overall sample was eighth grade, eighth month (8.8) and the most frequently completed grade was twelfth.

#### **The Method**

We used the 1978 edition of the Wide Range Achievement Test (WRAT), a well-known measure of academic ability. The test consists of three subtests, assessing reading, spelling, and arithmetic. Scores are reported in terms of grade level and month (for example, a score of 4.6 indicates performance equivalent to fourth grade, sixth month).

#### **Results**

Data were analyzed to reflect academic achievement in the areas of reading, spelling, and arithmetic as related to demographic variables and length of stay in the hospital.

With regard to sex, the only significant finding was that females scored higher than males on spelling ability ( $P < .05$ ). Females averaged a grade level of 4.9 (fourth grade, ninth month), whereas males averaged 3.8 on spelling (third grade, eighth month). Significant differences between males and females were not found on reading or arithmetic. No significant differences were found on any of the three academic abilities with regard to race, marital status, or age. Results showed a definitive difference between the average grade completed in school and actual academic achievement scores obtained by patients in this study. While grade completed averaged 8.8 (eighth grade, eighth month) by patient report, the total sample averaged only 5.3 on reading, 4.3 on spelling, and 2.2 on arithmetic, as determined by performance on the WRAT.

Analysis of variance determined that there were significant differences in academic achievement between diagnostic groups on spelling ( $P < .05$ ), reading ( $P < .001$ ) and arithmetic ( $P < .001$ ). These data are shown in Table 1.

It can be seen from the table that patients with affective disorders obtained the highest mean grade level scores on all three subtests. These patients were followed in order by those with schizophrenia, those with personality disorders, and those with organic brain syndrome.

We used a Pearson Correlation Coefficient to assess the relationship between

**TABLE 1**  
**Mean WRAT Scores for Diagnostic Groups**

| <b>Diagnostic Group</b> | <b>Spelling*</b> | <b>Reading**</b> | <b>Arithmetic**</b> |
|-------------------------|------------------|------------------|---------------------|
| Affective Disorders     | 6.48             | 8.31             | 3.91                |
| Schizophrenia           | 4.40             | 5.66             | 2.27                |
| Personality Disorders   | 3.67             | 3.55             | 1.60                |
| Brain Syndromes         | 2.98             | 2.57             | 0.95                |

\* P<.05

\*\* P<.001

academic achievement and length of stay in the institution, and found significant negative correlations between length of stay and each of the three measures. Length of stay correlated -.21 (P<.02) with reading scores, -.15 (P<.05) with spelling scores, and -.21 (P<.02) with arithmetic scores. These correlations indicate that academic achievement scores decreased as length of stay increased.

To assess need for academic instruction in the hospital, we determined the percentage of patients who scored within each grade level, from nursery to twelfth grade, on the three subtests. These percentages are shown in Table 2. On reading 35.0% of patients scored at the third grade level or below, and 63.4% scored at the 6th grade level or below. On spelling 49.1% of patients scored at the 3rd grade level or below and 72.0% scored at the 6th grade level or below. On arithmetic, 79.7% performed at the 3rd grade level or below, and 98.3% scored at 6th grade or below.

### **Discussion**

With regard to demographic variables, the only significant factor in patient characteristics in this study was the difference between males and females on spelling ability; reading and arithmetic results were consistent with this difference even though neither was statistically significant. This finding is consistent with the well established educational reality that females perform better on measures of academic ability, and it is interesting to note that this finding holds true

among psychiatric patients as well as normal students. Other demographic variables of age, marital status, and race were not significant as determinants of academic achievement.

Differences between diagnostic groups on the three measures of spelling, reading, and arithmetic were found to be significant, and differences were all in the same direction. Highest scores were obtained in the affective disorders group, followed by the schizophrenia, personality disorder, and organic brain syndrome groups. It is not surprising that patients with affective disorder obtained the highest scores, as these disorders are generally thought not to disturb cognitive abilities to any great extent. The low scores obtained by the brain syndrome patients are also consistent with clinical findings that patients with organic conditions often have very disturbed cognition and these disorders do great damage to abilities tapped by this test.

Also predictable is the finding that schizophrenic patients fall between the affective and brain syndrome patients in scores on academic achievement, as this illness disturbs cognitive function to some degree but is not as devastating as an organic brain-syndrome. The surprising piece of information from this study is that patients with personality disorders scored just above the brain syndrome patients on all three measures. These patients are generally thought to be rather alert and cognitively intact. It is possible that a selection factor is operating, such as the small sub-sample size, or the fact that our sample included only those patients with personality disorders severe enough to

**TABLE 2**  
**Percentage of Patients Scoring at or Below Grade Levels 3 and 6**

| <b>Grade Level</b> | <b>Spelling</b> | <b>Reading</b> | <b>Arithmetic</b> |
|--------------------|-----------------|----------------|-------------------|
| 3rd grade or below | 49.1%           | 35.0%          | 79.7%             |
| 6th grade or below | 72.0%           | 63.4%          | 98.3%             |

require commitment to a state psychiatric facility.

It is not surprising that even though the average educational level reported by the sample group was 8.8 (eighth grade, eighth month) the actual performance on academic achievement tests was lower than this level. Cognitive abilities are understandably affected by illness and by hospitalization, although further studies would have to be undertaken to determine the extent of each of these effects on achievement levels. Since psychiatric disorders of any kind affect perceptual, cognitive, and affective characteristics, it is quite possible that illness alone could account for these deficits, even without the effects of institutionalization. Further, grade level completed is not in every situation an accurate indicator of academic achievement, as students may be promoted to higher grades for a variety of reasons other than objective measures of achievement. These findings are consistent with those of Winder, who found that IQ scores of schizophrenics fell an average of ten points below the standard test mean of 100.

The finding that increasing length of stay is correlated with decreasing academic achievement is consistent with the results obtained by Bosi, but is contradictory to the findings of Martin et al., that schizophrenics' IQ scores remained stable across two years of hospitalization. This discrepancy could be due to methodological differences in the two studies. While length of stay is associated with decreasing academic ability, there is no evidence from this study that increased length of stay is a cause of these deficits. Further study would have to be undertaken to determine the causes of this decline in academic achievement. It may be that patients who have been in the hospital longer began with less schooling than patients admitted more recently, or that patients who have been hospitalized longer are more ill than those who have been in hospital for shorter periods of time.

The percentage of patients performing at the third grade level or below suggests a severe deficit in academic achievement among hospitalized psychiatric patients in this sample. A full 35% of the sample cannot read beyond the third grade level, a fact that makes

them unable to read standard local newspapers, lists of ingredients on food products, and application blanks for jobs and other purposes. With regard to spelling, an ability which is essential to writing, 49% of the sample performed at the third grade level or below, indicating that they are unable to spell words more difficult than "hour," "empty," and "county." Arithmetic abilities of the sample were extremely low, with approximately 80% of the patients in the sample scoring at the third grade level or below. Arithmetic tasks taught at the third grade include beginning multiplication, usually taught late in the third year. These findings indicate that patients scoring at the third grade level are able to complete tasks requiring simple addition and subtraction, but are unable to carry out such activities as comparing prices and finding a yearly salary having been given a monthly figure.

### Conclusions

It appears clear from the results of this study that academic achievement is an important factor which should be taken into account in planning treatment for psychiatric patients. This fact is especially true for patients who have been hospitalized for a long period of time, as academic achievement scores appear to show a negative relationship with increasing length of stay. It appears essential to teach patients those academic skills which will allow them to perform routine daily functions associated with these skills, and thus assist them with a better adjustment to community life after discharge from the hospital. Making these everyday tasks easier for released patients can contribute greatly to decreased stress, and can possibly increase the length of time they are able to remain out of the hospital and in the community.

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