Academic Deficits in Emotionally Disturbed Children Revisited

STEVEN R. FORNESS, Ed.D., LINDA BENNETT, M.A., AND JODI TOSE, B.A.

While some evidence exists that children with emotional disorders are deficient in academic achievement compared to non-handicapped populations, the nature and extent of these deficits remain unclear. For a sample of children admitted to a psychiatric hospital, achievement scores in reading, arithmetic, and spelling were obtained; and underachievement was computed based on mental age. Findings suggested that only minimal academic deficits exist but that wide variability is evident. Implications for differential diagnosis are discussed.


Most professionals who work with emotionally disturbed children agree that adaptation to the school environment is an important measure of these children's overall functioning level. Subsequent adjustment of children with psychiatric problems tends, in fact, to be best predicted by early school behavior (Kohlberg et al., 1972; Robins, 1966). Under the rubric of school behavior, classroom deportment and peer relationships are frequently of primary concern, and less attention has traditionally been devoted to the academic progress of disturbed children. However, recent federal legislation on schooling of emotionally disturbed and other handicapped children now requires that specific goals be set for every child in each academic area (Forness, 1979). Thus, the school achievement of disturbed children becomes a matter of renewed interest.

While past research has suggested that significant academic deficits are indeed characteristic of children with emotional disorders, the nature and extent of these deficiencies remain unclear. For example, the incidence of serious reading problems among disturbed children in public school or outpatient clinic settings has been reported to be anywhere from 50 to 80% (Glavin and Annesley, 1971; Hinton and Knights, 1971; Wright, 1974). Somewhat paradoxically, the same figure for children admitted for inpatient psychiatric hospitalization appears to be below 50% (Forness et al., 1980; Graubard, 1967; Motto and Lathan, 1966; Stone and Rowley, 1964; Tamkin, 1960). Academic gains made during psychiatric treatment tend nonetheless to be similar for both inpatient (Forness et al., 1981) and outpatient populations (Ashcraft, 1971), though when a particular group of disturbed children is subsequently admitted to an inpatient program, sharp increases in their rate of academic progress have been observed (Abidon and Seltzer, 1981). Likewise, children in special classes for the emotionally disturbed seem to have no advantages in eventual educational attainment over disturbed children left in regular classes (Calhoun and Elliott, 1977; Carlberg and Kavale, 1980; Vacc, 1972). It should be noted that mean ages in all the studies just cited ranged approximately from 9 to 12 years; and mean IQ, when reported, ranged from 88 to 105.

Careful examination of the above evidence, however, suggests that conclusions are frequently drawn from samples of fewer than 50 children; many have employed either group achievement tests or individual tests which are no longer widely used; sex differences are often not reported; and IQ data on children are sometimes unavailable. While some attempts have been made to study spelling errors (e.g., Glavin and De Girolano, 1970), many studies are limited to measures of reading recognition and arithmetic, and very few include measures of reading comprehension. Cullinan et al. (1981) have also made the point that age differences need to be taken into account because, while underachievement may not be great in the early elementary years, it increases as disturbed children grow older. Attempts to update our understanding of this area seem particularly important when one considers the changes in diagnostic labels and criteria which have occurred in the past few years (Forness

Dr. Forness is Professor in Residence, UCLA Mental Retardation and Child Psychiatry Program, and Special Education Director, UCLA Neuropsychiatric Institute, 760 Westwood Plaza, Los Angeles, CA 90024, where reprints may be requested. Ms. Bennett is an educational psychologist in the Child Outpatient Department of the UCLA Neuropsychiatric Institute, and Ms. Tose was a special studies student in the UCLA Graduate School of Education at the time the study was completed.

This study was supported in part by U.S. Office of Special Education Grant G008000868; National Institute of Child Health and Development Grant 4D 04812, 00345, and 05615; and U.S. Public Health Service, Maternal and Child Health Project 927 to the UCLA Mental Retardation and Child Psychiatry Program. The authors would like to acknowledge the valuable statistical assistance and consultation of Dr. Donald Guthrie, Computer Resources Group, UCLA Mental Retardation and Child Psychiatry Program.

0002-7138/83/2202-0140 $02.00/0 © 1983 by the American Academy of Child Psychiatry.
and Cantwell, 1982) at a point when much of the work cited above had already been completed.

The present study, therefore, was intended to reexamine the question of underachievement in emotionally disturbed children with reference to the above issues. A sizable sample of children was drawn from a psychiatric hospital in which patients were admitted for evaluation and short-term treatment. This sample had certain characteristics in common with both inpatient and outpatient populations in previous studies since, although hospitalized, children in the present study were generally admitted for a brief period of 2 to 4 months, whereupon they were usually returned to community school settings. The achievement test used was the Peabody Individual Achievement Test (Dunn and Markwardt, 1970) as opposed to previous studies which employed either group tests (the California Achievement Test, Metropolitan Achievement Test, or Stanford Achievement Test) or, in most cases, an individual achievement test (Wide Range Achievement Test) which has since been revised because of certain long-standing problems in standardization (Silverstein, 1978). The PIAT has not only been recognized as an increasingly widely used and more recent test of achievement for clinical populations (Wilson and Spangler, 1974) but has also been shown to produce somewhat different scores from the WRAT when used with the same group of children (Jenkins and Pany, 1978). Both boys and girls served as subjects in the present study; and IQ data were available as well so that variables such as sex and intelligence could be considered along with age and achievement in various academic areas.

Method

Subjects for the study were selected from a sample of children, aged 7 through 12 years, who were admitted to an inpatient ward for latency-aged children in the UCLA Neuropsychiatric Institute over a 4-year period, from January 1977 to February 1981. All children were hospitalized for serious emotional or behavior disorders; no children with early childhood autism were included in the sample. Racial distribution of the sample was as follows: 82% Caucasian, 10% black, 5% Spanish surname, 3% other racial designations. Although specific socioeconomic data were unavailable on some 10% of the subjects, available family income figures indicated a median income of $13,500 per year with a range from families on welfare to income in the $38,000 range. Occupations of principal wage earners appeared to cluster in the areas of craftsmen and service workers with apparently fewer than 15% in the professional or managerial series. A complete description of the hospital treatment program and school approaches is provided in Forness (1977, 1978); but, for purposes here, it should be mentioned that these children were admitted primarily for short-term evaluation or treatment of a variety of psychiatric problems. Most psychiatric diagnoses clustered primarily in the areas of conduct or adjustment disorders with a second small cluster in disorders of affect or anxiety, according to DSM-III criteria (Forness and Cantwell, 1982).

Achievement testing of each child was done during the first week of hospital admission. All tests were administered either by one of two credentialed classroom teachers with masters degrees or by the team leader who had a Ph.D. in special education. The achievement test used was the Peabody Individual Achievement Test (Dunn and Markwardt, 1970). Four subtests, Reading Recognition, Reading Comprehension, Mathematics, and Spelling, were used in the analysis of data. Current WISC-R IQs were obtained from each child's medical records. Although 134 subjects had been admitted over the study period, complete sets of scores were unavailable on 42 subjects whose achievement testing could not be completed or for whom recent IQ data were not available. Comparison of the data on these subjects with the remaining subjects in the sample did not reveal any systematic bias in sex or age.

As a measure of the level of underachievement at admission, each child's level of achievement at that point was subtracted from his or her expected grade level. Expected grade level was computed by converting IQ and chronological age to mental age (unless a mental age had already been reported along with IQ data) and then subtracting 5 from the mental age. Although this formula has some limitations in determining significant educational underachievement related to establishing the presence of a learning disability (Elliott, 1981; McLeod, 1979), it was used herein primarily because it was the formula used most frequently, if at all, in previous studies and therefore allowed at least some comparison with past findings.

Results

Over the 4-year period 92 subjects, 23 girls and 69 boys, were available for study, i.e., had complete intelligence and achievement test results. Mean age of the sample was 10.1 years (range 6.5 to 13.1 years; SD 1.6 years); and there were no statistically significant differences between boys and girls in terms of age. Table 1 presents a summary of achievement and intelligence test scores. Note that on the average subjects' IQ scores were in the low 90s and that, while there was an apparent difference in IQ between boys and girls, this difference was not statistically significant.

Table 2 presents the mean number of years below
grade level (corrected for mental age as described above) in each area of academic achievement. A two-way analysis of variance was used to analyze differences between sexes, both within each subject area and between subject areas; and significant differences were further analyzed using Duncan’s post hoc comparisons. There were no statistically significant differences between boys and girls within any academic area or between academic areas, i.e., boys and girls displayed a similar degree of underachievement in each of the four academic areas.

To examine the question of age as it relates to achievement deficits, the sample was divided into six relatively equally distributed chronological age groupings (with the exception of the youngest group which had only six subjects) as depicted in Table 3. Using the statistical analyses described above, differences between age groups for males and females, within and between each subject area, were analyzed. Ten year olds were found to display significantly greater underachievement in math \( (F = 2.9, df = 5/80, p < 0.01) \) than the 7-, 8- or 12-year-olds. There were significant age \( \times \) sex interactions for reading recognition \( (F = 2.55, df = 5/80, p < 0.03) \) and reading comprehension \( (F = 2.75, df = 5/80, p < 0.02) \) such that 12-year-old boys displayed significant underachievement in both areas while 12-year-old girls displayed significant overachievement. This pattern of male underachievement and female overachievement tended also to be the case for 9-year-olds, though it was not statistically significant.

In addition, there was a significant age \( \times \) sex interaction when total mean deficits per age group (reading + spelling + math) were compared for girls versus boys \( (F = 3.27, df = 5/80, p < 0.0098) \). Further analysis revealed this interaction was due to an age effect among girls \( (F = 3.05, df = 5/17, p < 0.03) \), while no age differences were found among boys. Specifically, the 10-year-old girls displayed a mean overall deficit of 2.1 years while 12-year-old girls displayed mean overachievement of 1.7 years.

Finally, to compare the degree of underachievement found in our sample versus that found in previous studies, adjusted achievement scores were classified according to “severe” underachievement (more than 1 year), “moderate” underachievement (between \( \frac{1}{2} \) and 1 year), and “minimal” or no underachievement (less than \( \frac{1}{2} \) year). Percentages in each of these categories were then computed for each subject area as depicted in table 4. The majority of children displayed either negligible or only moderate underachievement in reading and math, while in spelling equal numbers of children fell within the minimal and severe categories.

**Discussion**

When expected achievement was adjusted for mental age, only about a third of the children in this sample had deficits of a year or more in reading and math. More than half of the sample had either negligible deficits or none whatsoever, although there was wide variability. Spelling deficits were somewhat more common. These findings are consistent with earlier results of Tamkin (1960) for an inpatient sample, though he did not employ mental age in computing underachievement. Later studies, which did utilize a mental
ACADEMIC DEFICITS AND EMOTIONAL DISTURBANCE

TABLE 3
Mean Achievement Deficits by Age and Sex

<table>
<thead>
<tr>
<th>Age in Years</th>
<th>Reading Recognition</th>
<th>Reading Comprehension</th>
<th>Mathematics</th>
<th>Spelling</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Boys</td>
<td>Girls</td>
<td>Boys</td>
<td>Girls</td>
</tr>
<tr>
<td>7 and below</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>0.46</td>
<td>-0.19</td>
<td>1.41</td>
<td>-0.59</td>
</tr>
<tr>
<td>9</td>
<td>0.38</td>
<td>0.02</td>
<td>0.11</td>
<td>0.22</td>
</tr>
<tr>
<td>10</td>
<td>-0.68</td>
<td>0.50</td>
<td>-0.96</td>
<td>0.06</td>
</tr>
<tr>
<td>11</td>
<td>-0.11</td>
<td>-2.03</td>
<td>-0.26</td>
<td>-1.70</td>
</tr>
<tr>
<td>12 and above</td>
<td>0.77</td>
<td>-0.97</td>
<td>0.08</td>
<td>-1.17</td>
</tr>
<tr>
<td></td>
<td>-2.01</td>
<td>1.82</td>
<td>-1.44</td>
<td>1.52</td>
</tr>
</tbody>
</table>

TABLE 4
Percent of Children Underachieving in Each Subject Area

<table>
<thead>
<tr>
<th>Degree of Underachievement</th>
<th>Reading Recognition</th>
<th>Reading Comprehension</th>
<th>Mathematics</th>
<th>Spelling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimal (&lt;1/2 yr)</td>
<td>57.61</td>
<td>59.78</td>
<td>54.35</td>
<td>46.74</td>
</tr>
<tr>
<td>Moderate (1/2-1 yr)</td>
<td>4.35</td>
<td>9.78</td>
<td>15.22</td>
<td>6.52</td>
</tr>
<tr>
<td>Severe (&gt;1 yr)</td>
<td>38.04</td>
<td>30.43</td>
<td>30.43</td>
<td>46.74</td>
</tr>
</tbody>
</table>

age adjustment, found somewhat greater degree of underachievement than the present study (Glavin and Annesley, 1971; Motto and Lathan, 1966; Stone and Rowley, 1964). One possible explanation for such differences might be in the use of the PIAT (rather than the WRAT) which apparently provides a more accurate assessment of underachievement among clinical populations (Silverstein, 1978; Wilson and Spangler, 1974).

A second possible explanation is that mean ages in earlier studies tended to be somewhat older (close to 12 years) than in the present study; and underachievement tends to increase with age (Cullinan et al., 1981). This pattern was clearly evident in the present study in which the youngest children displayed varying degrees of overachievement in reading and math. By age 9, academic deficits were beginning to emerge. Despite this age trend, however, the only significant age difference found was among the 10-year-olds who displayed greater underachievement in math than the 7-, 8-, or 12-year-olds. This might be explained by the greater difficulties encountered when fractions and division are introduced during 4th and 5th grades. Also, this study did not consider grade retention when computing underachievement. Since math skills, perhaps more so than reading, may be influenced by opportunity for classroom instruction, lower math scores may have simply reflected lack of exposure due to retention in lower grades.

In addition to age differences, there were also significant sex differences within particular age groups. Twelve-year-old girls were found to be almost 2 years above grade level in reading recognition and reading comprehension while boys in the same age group were almost 2 years below. When overall underachievement (reading + spelling + math) was considered, boys showed no age differences while 10-year-old girls, on the average, were 2 years below grade level and 12-year-old girls were 2 years above.

Finally, in terms of the four academic areas tested, no differences were noted among reading, spelling, and math deficits for the sample as a whole or for different age and sex groups. Although earlier studies did find math scores to be lower than reading and spelling scores (Forness et al., 1980; Stone and Rowley, 1964), these either did not use a mental age adjustment or used the WRAT which measures written math computation rather than math reasoning.

The present study has attempted to clarify the nature and extent of underachievement among emotionally disturbed children. It should be noted that most of these children tended to display a rather homogeneous pattern of underachievement across all subject areas, rather than a specific disability in one area, the pattern often found among learning disabled children (Forness, 1981). While these data were not analyzed systematically by DSM-III psychiatric diagnoses, informal examination of the findings did not suggest any particular pattern of achievement by diagnostic category. It is of interest to note, moreover, that of 15 subjects with either a primary or secondary diagnosis of attention deficit disorder only 7 were in the group of subjects with achievement more than a year below expected grade level. Previous research with inpatient psychiatric patients (Barnes and Forness, 1982) also found no statistically significant differences in underachievement by DSM-III diagnoses. The point to be made, however, is that, compared to previous findings on disturbed children, the level of underachievement found in the present study is considerably less severe. Apparently when IQ is controlled for and a clinically more relevant, individual measure of achievement is used, the achievement of emotionally disturbed children may not be as low as previously assumed.
References


