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## Affective Disorders in Hospitalized Children and Adolescents With Mental Retardation: A Retrospective Study

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*We contrasted a sample of children and adolescents with affective disorders and mental retardation with a comparison group on behavioral symptoms, associated diagnoses, and psychopharmacologic treatment. Fifty consecutive patients with both impaired intellectual functioning and at least one affective disorder admitted to a psychiatric inpatient unit for children and adolescents with developmental disabilities and psychiatric disorders were matched to a group of 50 inpatients without depression. Behavioral symptoms such as suicidal ideation or gestures, crying, irritability, sleep problems, agitation, mood lability, and social withdrawal/isolation occurred significantly more often in the affective group than in the comparison group. Aggression, however, was the most frequent behavior concern for both groups, whereas disruption/destruction was identified significantly more often in the comparison group. Regarding Axis I diagnoses, the comparison group was more often identified with externalizing disorders (ADHD, ODD), though there was a high rate of comorbidity in the affective disorder group. The behavioral symptoms used to diagnosis normally developing children and adolescents appear to be applied in making affective disorders diagnoses in this sample of children and adolescents with mental retardation.*

Affective disorders in children and adolescents have received considerable research attention in recent years. Through these efforts, an impressive knowledge base has been acquired regarding the prevalence, clinical

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presentation, course, and diagnostic assessment practices for children and adolescents with normal cognitive functioning. Prevalence rates have most typically ranged from 1% to approximately 5%, depending on criteria employed, age of the sample, and instrumentation utilized (see Harrington, 1993). The clinical symptoms of affective disorders in children and adolescents are similar to those most often associated with affective disorders in adulthood, with minor adjustments to account for developmental status (see Carlson & Garber, 1986; Carlson & Kashani, 1988; Puig-Antich, 1986; Ryan et al., 1987). Included were behaviors such as depressed appearance, psychomotor agitation or retardation, low self-esteem, social withdrawal, somatic complaints, change in sleep, change in weight, and suicidal ideation, among others. Assessment procedures to diagnose affective disorders in children and adolescents include structured interview schedules, self-rating scales, informant rating tools, and direct observation methods (see reviews by Harrington, 1993; Kazdin, 1990). Despite this wealth of knowledge, most studies have excluded children and adolescents with mental retardation or other developmental disabilities.

This exclusion of children and adolescents with mental retardation and other developmental disabilities in studies of affective disorders is significant for several reasons. First, it has been well documented that there is an increased prevalence rate of psychiatric disorders in persons with mental retardation and developmental disabilities (Baker & Cantwell, 1987; Rutter, Tizard, Yule, Graham, & Whitmore, 1976; Stevenson, Richman, & Graham, 1985). The estimated prevalence of psychiatric disorders in children with intellectual quotients less than 70 ranges from two to five times that of normally developing children (Matson & Frame, 1986; Reiss, 1985; Rutter et al., 1976). Second, the presence of an affective disorder in children and adolescents may more severely impair an individual already limited by cognitive deficits (Reynolds & Baker, 1988). Third, learning problems, social skills deficits, low self-esteem, which are often associated with mental retardation, could place this special group of children and adolescents at higher risk for the development of an affective disorder (Beck, Carlson, Russell, & Brownfield, 1987).

The paucity of research in affective disorders in both adults and children with mental retardation may be due in large part to an earlier, widely held belief that individuals with mental retardation lacked the necessary cognitive abilities for the development of affective disorders (Matson, Barrett, & Helsel, 1988; Pawlarczyk & Beckwith, 1987; Sovner & Hurley, 1983). In addition, the lack of appropriate diagnostic assessment tools for use with this population has thwarted progress. However, with mounting evidence to the contrary, it is generally accepted that individuals with mental retardation and other developmental disabilities suffer from the full range of affective disorders (Sovner & Hurley, 1983). The research, thus far, has tended to focus on assessment practices and has mainly involved adolescents and adults. These studies have

demonstrated striking similarities in symptomatology between persons functioning in the mild and moderate range of mental retardation and their normally developing counterparts (Reynolds & Miller, 1985; Sovner & Hurley, 1983). However, for those individuals functioning within the severe to profound range of mental retardation, differences in clinical manifestation of affective disorders may exist (Pawlarczyk & Beckwith, 1987; Sovner & Hurley, 1983).

In one of the few studies including young children, Matson et al. (1988) identified depressive symptoms in children with mental retardation using instruments developed for normally developing children, thus suggesting similarities between the two groups with respect to clinical presentation. Similarly, in comparing a nonreferred sample of adolescents with and without mental retardation, Benavidez and Matson (1993) reported high correlations between the two groups on most assessment tools administered. Although these few investigations have provided some useful preliminary information regarding the presentation of affective disorders among persons with mental retardation, they have been limited in scope and have often involved nonclinical samples with small sample sizes.

As a preliminary step to acquire more knowledge regarding the clinical presentation of affective disorders in children and adolescents with mental retardation, a retrospective chart review was conducted to compare a clinical sample of children and adolescents with affective disorders with a clinical sample who have nonaffective disorder diagnoses. We hypothesized that the affective disorder group would have more behavioral symptoms to include sleep and appetite problems, suicidal ideation and gestures, social withdrawal/isolation, crying and sad affect, irritability and agitation, and mood lability. In contrast, we hypothesized that the affective group would present with less externalizing disorders or "acting out" behaviors such as aggression, destruction, and disruption. Although the overall rate of comorbidity was expected to be high, given the sample was comprised of psychiatric inpatients, it was predicted that the affective group would be diagnosed with more internalizing disorders (i.e., anxiety disorders). No significant differences were expected between the two groups on developmental disorders (Axis II diagnoses) or medical diagnoses. Finally, it was predicted that the affective group would most often receive antidepressants and the comparison group would more frequently receive other classes of psychoactive medication, such as psychostimulants or neuroleptics.

## METHODS

### *Subjects*

This retrospective study involved the chart review of 50 consecutive patients with both impaired intellectual functioning and at least one affective

disorder (Major Depressive Disorder, Dysthymic Disorder, Bipolar Disorder) admitted to a psychiatric inpatient unit for children and adolescents with developmental disabilities and psychiatric or behavioral disorders. Subjects recruited spanned a 7 1/2 year period from June 1986 to November 1993. A total of 1209 patients were admitted during this time interval. Diagnoses were made by a child psychiatrist using DSM-III and DSM-III-R criteria, depending on the date of discharge. The matched comparison group consisted of 50 out of 102 consecutive admissions with mental retardation and another psychiatric or behavioral disorder but no affective disorder. The latter group was matched with the affective disorder group on age (within an 8-month span above the year of age), level of mental retardation, and gender.

### *Procedures*

The inpatient medical records of the two groups were reviewed utilizing a standard data form with information obtained from consistent sources across subjects. DSM-III and DSM-III-R diagnoses (Axis I, Axis II, and Axis III), and medications were obtained from the Psychiatric Discharge Summary, which is a standard format and written by a child and adolescent psychiatrist at the end of the hospitalization. Specific behavioral symptoms as reported by the parent(s) or caregiver were obtained from the Psychiatric Discharge Summary. Although the study initially intended to obtain information regarding parental psychopathology, this information was inconsistently documented and will not be reported here. Reliability was obtained for 26% of the charts. Kappa coefficients (Cohen, 1960) were calculated for psychiatric diagnoses, referral behavioral concerns, and medications. The mean kappas were 0.99, 0.97, 1.0, 0.90, and 1.0 for Axis I, Axis II, Axis III, referral concerns, and medication, respectively.

The percentages of the occurrence of diagnoses, referral behavior concerns, and types of medications prescribed for the affective group and the comparison group were calculated. The McNemar test (Everitt, 1993) was conducted to determine statistically significant differences in the proportions of occurrences for the affective group and the comparison matched pairs. Data were analyzed by the use of StatXact (CYTEL, 1991), a software package for nonparametric inference.

## **RESULTS**

The two groups contained 41 boys and 9 girls. The mean age for the affective disorder group was 13 years, 4 months, with a range of 6 years, 2 months to 17 years, 11 months and a standard deviation of 3 years, 5 months. For the comparison group, the mean age was 13 with a range of 6

years, 7 months to 17 years, 10 months, with a standard deviation of 2 years, 10 months. Ten pairs (20%) in the sample were in the borderline range of intellectual functioning, whereas 23 of the pairs (46%) were diagnosed with mild mental retardation. Eight pairs (16%) were functioning in the moderate range of mental retardation, and another 8 pairs (16%) were functioning in the severe/profound range of mental retardation. One pair was diagnosed with mental retardation, unspecified.

The number and percentages of referral behaviors reported by parent(s) or caregiver(s) at the time of admission are presented in Table 1. There were several significant differences between the two groups. Suicidal ideation and gestures were identified in the affective disorder group significantly more often than in the comparison group. Agitation, sleep problems, mood lability, social withdrawal/isolation also occurred significantly more often in the affective disorder group. Disruption/destruction was identified significantly more often in the comparison group. However, for both groups, aggression was the most common referral concern.

The percentages of Axis I diagnoses, other than affective disorders, for the two groups are presented in Table 2. The comparison group was diagnosed significantly more often with externalizing disorders commonly seen in the childhood years (Attention Deficit Hyperactivity Disorder, ADHD;

**TABLE 1**  
Behavior Problems — Parent Report (percentages in brackets)

	Affective Disorder ( <i>N</i> = 50)	Matched Comparison ( <i>N</i> = 50)	$\chi^2$ <sup>a</sup>	<i>p</i> <sup>b</sup>
Aggression	40 (80%)	42 (84%)	-.5000	NS
Suicidal ideation/ Suicidal gestures	21 (42%)	7 (14%)	2.985	.0043
Sleep problems	21 (42%)	8 (16%)	2.600	.0146
Disruption/ Destruction	20 (40%)	28 (56%)	-1.886	.0327
Self-Injurious	20 (40%)	17 (34%)	.6882	NS
Tantrums	17 (34%)	17 (34%)	.0000	NS
ADHD Symptoms	14 (28%)	21 (42%)	-1.606	NS
Social withdrawal/ Social isolation	14 (28%)	1 (2%)	3.357	.0010
Mood lability	12 (24%)	2 (4%)	2.673	.0129
Irritability	11 (22%)	6 (12%)	1.213	NS
Crying	9 (18%)	3 (6%)	1.897	NS
Verbal abuse	9 (18%)	7 (14%)	.5345	NS
Agitation	9 (18%)	1 (2%)	2.530	.0215
Running away/ Wandering	6 (12%)	8 (16%)	-.6325	NS
Eating problems	5 (10%)	1 (2%)	1.633	NS
School refusal	5 (10%)	0	2.236	NS

<sup>a</sup>Test statistic for the McNemar's Test.

<sup>b</sup>Level of significance for the McNemar's Test, *df* = 1.

Oppositional Defiant Disorder, ODD). Nonetheless, there were 12 subjects in the affective disorder group that carried a comorbid diagnosis of ODD, and 9 of this group were diagnosed with ADHD. Organic Mental Disorder, Not Otherwise Specified (OMD, NOS) was also diagnosed significantly more often in the comparison group. No patients with affective disorder had a diagnosis of OMD, NOS. There were no differences between the two groups with regard to any anxiety disorders.

The frequencies percentages of Axis II and Axis III diagnoses for the affective disorder group and the comparison group are presented in Tables 3 and 4, respectively. There were no statistical differences for any of the Axis II diagnoses. For Axis III diagnoses, seizure disorders occurred significantly more often in the matched comparison group. There were no other differences between the two groups in the occurrence of medical diagnoses.

Table 5 lists the percentages of medication types that the two groups were prescribed at discharge. There were no differences in types of medications prescribed between the two groups, with the exception of antidepressants, which were prescribed significantly more often in the affective group.

## DISCUSSION

This retrospective investigation provides a comparison between a sample of children and adolescents with mental retardation with an affective disorder and a group with nonaffective, psychiatric disorders. Interesting differences but also some unexpected similarities were found in the presenting

TABLE 2  
Axis I Diagnoses (percentages in brackets)

	Affective Disorder ( <i>N</i> = 50)	Matched Comparison ( <i>N</i> = 50)	$\chi^2$ <sup>a</sup>	<i>p</i> <sup>b</sup>
Oppositional Defiant Disorder (ODD)	12 (24%)	23 (46%)	-2.117	.0522
Attention Deficit Hyperactivity Disorder (ADHD)	9 (18%)	22 (44%)	-3.153	.0023
Anxiety Disorder	2 (4%)	4 (8%)	-.8165	NS
Conduct Disorder (CD)	2 (4%)	5 (10%)	-1.134	NS
Intermittent Explosive Disorder	1 (2%)	3 (6%)	-1.000	NS
Adjustment Disorder	1 (2%)	4 (8%)	-1.342	NS
Organic Mental Disorder, NOS	0	11 (22%)	-3.317	.0010

<sup>a</sup>Test statistic for the McNemar's Test.

<sup>b</sup>Level of significance for the McNemar's Test, *df* = 1.

**TABLE 3**  
**Axis II Diagnoses (percentages in brackets)**

	Affective Disorder ( <i>N</i> = 50)	Match Comparison ( <i>N</i> = 50)	$\chi^2$ <sup>a</sup>	<i>p</i> <sup>b</sup>
Developmental Expressive Language Disorder	17 (34%)	10 (20%)	1.460	NS
Developmental Receptive Language Disorder	15 (30%)	7 (14%)	1.789	NS
Autism/Pervasive Developmental Disorder	12 (24%)	10 (20%)	.5000	NS
Developmental Articulation Disorder	9 (18%)	9 (18%)	.0000	NS

<sup>a</sup>Test statistic for the McNemar's Test.

<sup>b</sup>Level of significance for the McNemar's Test, *df* = 1.

referral behaviors of the two groups. As speculated, group differences were realized for several behavioral symptoms consistent with affective disorders to include suicidal ideation or gestures, crying, irritability, sleep problems, agitation, mood lability, and social withdrawal/isolation. Although group differences in the rate of reported school refusal or eating problems were not significant, there was a trend toward these being identified more often in the affective disorder group. Those behavioral symptoms associated with affective disorders are similar to those commonly identified in children and adolescents without mental retardation (see Cantwell, 1992; Kazdin, 1990; Puig-Antich, 1986). Hence, the findings of this study are consistent with earlier reports that suggest the behavioral presentation of affective symptoms in children and adolescents with mental retardation to be similar to those without cognitive impairment (i.e., Matson et al., 1988; Reynolds & Baker, 1988). It is noteworthy that, for both groups, aggression

**TABLE 4**  
**Axis III Diagnoses (percentages in brackets)**

	Affective Disorder ( <i>N</i> = 50)	Match Comparison ( <i>N</i> = 50)	$\chi^2$ <sup>a</sup>	<i>p</i> <sup>b</sup>
Obesity	3 (6%)	2 (4%)	.4472	NS
Scoliosis	2 (4%)	0	-1.414	NS
Asthma	1 (2%)	1 (2%)	.0000	NS
Hearing Impairment	1 (2%)	2 (4%)	-.5774	NS
Seizure D/O	1 (2%)	12 (24%)	-3.051	.0034
Cerebral Palsy	0	2 (4%)	-1.414	NS
Diabetes	0	2 (4%)	-1.414	NS
Visual Deficit	0	4 (8%)	-2.000	NS

<sup>a</sup>Test Statistic for the McNemar's Test.

<sup>b</sup>Level of significance for the McNemar's Test, *df* = 1.

**TABLE 5**  
**Medications (percentages in brackets)**

	Affective Disorder ( <i>N</i> = 50)	Match Comparison ( <i>N</i> = 50)	$\chi^2$ <sup>a</sup>	<i>p</i> <sup>b</sup>
Antidepressants	23 (46%)	11 (22%)	2.683	.0118
Antipsychotic	14 (28%)	6 (12%)	1.789	NS
Lithium	14 (28%)	8 (16%)	1.414	NS
Anticonvulsants	13 (26%)	11 (22%)	.5000	NS
Stimulants	5 (10%)	11 (22%)	-1.732	NS
None	3 (6%)	6 (12%)	-1.000	NS
Clonidine	1 (2%)	5 (10%)	-1.633	NS

<sup>a</sup>Test Statistic for the McNemar's Test.

<sup>b</sup>Level of significance for the McNemar's Test, *df* = 1.

was the most frequently occurring referral concern. This is likely to be a function of the selection bias, given that this behavior poses a threat to others and is a typical cause for hospitalization. Nonetheless, aggression has been noted to occur in children with depressive symptomatology but without mental retardation at higher rates than expected (Capaldi, 1991; Weiss & Catron, 1994). It is interesting that this was also found here.

For Axis I diagnoses, it is not surprising that the comparison group had more diagnoses with Attention Deficit Hyperactivity Disorder (ADHD) and Oppositional Defiant Disorder (ODD), given that these externalizing disorders represent the most common childhood disorders seen in a clinic sample (Barkley, 1990; Rutter, Cox, Tupling, Berger, & Yule, 1975). Moreover, there is clear support for antisocial behaviors (whether diagnosed as ODD or conduct disorder), and ADHD symptoms often co-occur (Taylor, 1988). It should be underscored, nonetheless, that within the affective disorder group, a large number of subjects had more than one Axis I diagnosis that included ADHD and ODD. This high rate of comorbidity between depressive disorders and externalizing disorders has also been reported for normally developing children and adolescents (see Angold & Costello, 1993).

In light of the strongly supported overlap between affective and anxiety disorders in the literature (Brady & Kendall, 1992; Kovacs, Gatsonis, Paulauskas, & Richards, 1989), it is surprising that no differences were observed. It is difficult to interpret the overrepresentation of Organic Mental Disorder, Not otherwise Specified (OMD, NOS) diagnosis in the nonaffective disorder group. This disparate finding may have been more of a function of the difference between the two groups with respect to the presence of a seizure disorder. In another report with a similar sample, it was found that psychiatric inpatients with a seizure disorder were significantly more often diagnosed with OMD, NOS than their matched controls



without a seizure disorder (Johnson, Lowengrub, & Lubetsky, in press). Nonetheless, this is also difficult to interpret. One possibility is that seizure disorders are more often correlated with paroxysmal externalizing behaviors, although the support for this has been equivocal (i.e., Fenwick, 1991; Holmes, 1987).

Differences between the two groups with regard to Axis II diagnoses were not expected given that there is little in the limited literature to suggest that any one developmental disability places an individual at increased risk for an affective disorder. Developmental disability is a risk factor for psychopathology in general (Matson & Frame, 1986; Reynolds & Baker, 1988; Rutter et al., 1976; Stevenson et al., 1985).

Psychopharmacologic treatment for the two groups of children were similar with the exception of more antidepressant usage in the affective disorder group. The lack of difference in the use of anticonvulsants should be highlighted given the overrepresentation of seizure disorders in the comparison group. It is assumed then that the affective group were prescribed anticonvulsants as mood stabilizers either alone or as an adjunct to antidepressants (Carpenter & Vining, 1993; Viesselman, Yaylayan, Weller, & Weller, 1993).

### *Limitations of Current Investigation*

The shortcomings and limitations of this study deserve highlighting. Most obvious are the weaknesses inherent in a retrospective investigation in which there is reliance on historical information. Due to the time interval, DSM-III (APA, 1980) and DSM-III-R (APA, 1987) criteria were both utilized. Furthermore, diagnostic information, although based on a standard report, was not based on a comprehensive interview schedule nor the use of multiple instruments. This greatly limits this study's findings. The reliance on only parental report further warrants cautious interpretation of findings given the documentation of poor concordance between child and parent report of affective symptoms (Kazdin, French, Unis, & Esveldt-Dawson, 1983). Finally, the wide age spread, which included prepubertal children through late adolescence, also limits the specificity of these results.

Nonetheless, this findings set the stage for future research as well as additional support for the premise that children and adolescents with mental retardation do experience affective disorders. Not only is there substantial need to improve our understanding of the course of affective disorders in this special population, but there is an extraordinary need to refine assessment practices in this area, which will ultimately lead to improved treatment. Although it appears that the diagnosis of an affective disorder is currently made based on the reliance of those symptoms associated with

affective disorders in normally developing youngsters, these may be due to a lack of knowledge about the presentation of these disorders in children and adolescents with mental retardation.

## REFERENCES

- American Psychiatric Association. (1980). *Diagnostic and statistical manual of mental disorders* (3rd ed.; *DSM-III*). Washington, DC: American Psychiatric Association.
- American Psychiatric Association. (1987). *Diagnostic and statistical manual of mental disorders* (3rd ed., rev.; *DSM-III-R*). Washington, DC: American Psychiatric Association.
- Angold, A., & Costello, E. J. (1993). Depressive comorbidity in children and adolescents: Empirical, theoretical, and methodological issues. *American Journal of Psychiatry*, *150*, 1779–1791.
- Baker, L., & Cantwell, D. P. (1987). A prospective psychiatric follow-up of children with speech/language disorders. *Journal of the American Academy of Child and Adolescent Psychiatry*, *26*, 546–553.
- Barkley, R. A. (1990). A critique of current diagnostic criteria for attention deficit hyperactivity disorder: Clinical and research implications. *Journal of Developmental and Behavioral Pediatrics*, *11*, 343–352.
- Beck, D. C., Carlson, G. A., Russell, A. T., & Brownfield, F. E. (1987). Use of depression rating instruments in developmentally and educationally delayed adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry*, *26*, 97–100.
- Benavidez, D., & Matson, J. L. (1993). Assessment of depression in mentally retarded adolescents. *Research in Developmental Disabilities*, *14*, 179–188.
- Brady, E. U., & Kendall, P. C. (1992). Comorbidity of anxiety and depression in children and adolescents. *Psychological Bulletin*, *111*, 244–255.
- Cantwell, D. P. (1992). Clinical phenomenology and nosology. In D. P. Cantwell, (Ed.), *Child adolescent psychiatric clinics of North America: Mood disorders* (Vol. 1, pp. 1–11). Philadelphia: W.B. Saunders Company.
- Capaldi, D. M. (1991). Co-occurrence of conduct problems and depressive symptoms in early adolescent boys: I. Familial factors and general adjustment. *Development and Psychopathology*, *3*, 277–300.
- Carlson, G. A., & Garber, J. (1986). Developmental issues in the classification of depression in children. In M. Rutter, C. E. Izaed & P. B. Read (Eds.), *Depression in young people* (pp. 399–434). New York: Guilford Press.
- Carlson, G. A., & Kashani, J. H. (1988). Phenomenology of major depression from childhood through adulthood: Analysis of three studies. *American Journal of Psychiatry*, *145*, 1222–1225.
- Carpenter, R. O., & Vining, E. P. G. (1993). Antiepileptics (Anticonvulsants). In J. S. Werry & M. G. Aman (Eds.), *Practitioner's guide to psychoactive drugs for children and adolescents* (pp. 321–346). New York: Plenum Medical Book Company.
- Cohen, J. (1960). A coefficient of agreement for nominal scales. *Educational and Psychological Measurement*, *20*, 37–46.
- CYTEL Software Corporation. (1991). *StatXact: Statistical software for exact nonparametric inference user manual* (Version 2). Cambridge, MA: Author.
- Everitt, B. S. (1993). Some aspects of the analysis of categorical data. In G. Deren & C. Lewis (Eds.), *Handbook for data analysis in the behavioral sciences* (pp. 321–345). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Fenwick, P. (1991). Aggression and epilepsy. In O. Devinsky & W. H. Theodore (Eds.), *Epilepsy and behavior* (pp. 85–96). New York: Wiley-Liss.
- Harrington, R. (1993). *Depressive disorder in childhood and adolescence*. New York: John Wiley & Son.

- Holmes, G. L. (1987). *Diagnosis and management of seizures in children*. Philadelphia: W. B. Saunders Company.
- Johnson, C. R., Lowengrub, J. A., & Lubetsky, M. J. (in press). Psychiatric and behavior disorders in children with mental retardation and seizure disorder. *Journal of Developmental and Physical Disabilities*.
- Kazdin, A. E. (1990). Childhood depression. *Journal of Child Psychology and Psychiatry*, *31*, 121-160.
- Kazdin, A. E., French, N. H., Unis, A. S., & Esveltd-Dawson, K. (1983). Assessment of childhood depression: Correspondence of child and parent ratings. *Journal of the American Academy of Child and Adolescent Psychiatry*, *11*, 157-164.
- Kovacs, M., Gatsonis, C., Paulauskas, S. L., & Richards, C. (1989). Depressive disorders in children: IV. A longitudinal study of comorbidity with and at risk for anxiety disorders. *Archive of General Psychiatry*, *46*, 776-782.
- Matson, J. L., & Frame, C. L. (1986). *Psychopathology among mentally retarded children and adolescents* (Vol. 6). Beverly Hills: Sage Publications.
- Matson, J. L., Barrett, R. P., & Helsel, W. J. (1988). Depression in mentally retarded children. *Research of Developmental Disabilities*, *9*, 39-46.
- Pawlarczyk, D., & Beckwith, B. E. (1987). Depressive symptoms displayed by persons with mental retardation: A review. *Mental Retardation*, *25*, 325-330.
- Puig-Antich, J. (1986). Psychobiological markers: Effects of age and puberty. In M. Rutter, C. E. Izard, & P. B. Read (Eds.), *Depression in young people* (pp. 399-434). New York: Guilford Press.
- Reiss, S. (1985). The mentally retarded, emotionally disturbed adult. In M. Sigman (Ed.), *Children with emotional disorders and developmental disabilities* (pp. 171-192). Orlando, FL: Grune & Stratton.
- Reynolds, W. A., & Baker, J. A. (1988). Assessment of depression in persons with mental retardation. *American Journal on Mental Retardation*, *93*, 93-103.
- Reynolds, W. M., & Miller, K. L. (1985). Depression and learned helplessness in mentally retarded and nonmentally retarded adolescents: An initial investigation. *Applied Research in Mental Retardation*, *6*, 295-306.
- Rutter, M., Cox, A., Tupling, C., Berger, M., & Yule, W. (1975). Attainment and adjustment in two geographical areas: I. The prevalence of psychiatric disorder. *British Journal of Psychiatry*, *126*, 493-509.
- Rutter, M., Tizard, J., Yule, W., Graham, O., & Whitmore, K. (1976). Isle of Wight studies, 1964-1974. *Psychological Medicine*, *6*, 313-332.
- Ryan, N. D., Puig-Antich, J., Ambrosini, P., Rabinovich, H., Robinson, D., Neslon, B., Iyengar, S., & Twomey, J. (1987). The clinical picture of major depression in children and adolescents. *Archives of General Psychiatry*, *44*, 854-861.
- Sovner, R., & Hurley, A. D. (1983). Do the mentally retarded suffer from affective illness? *Archives of General Psychiatry*, *40*, 61-67.
- Stevenson, J., Richman, N., & Graham, P. (1985). Behavior problems and language abilities at three years and behavioral deviance at eight years. *Journal of Child Psychology and Psychiatry*, *26*, 215-230.
- Taylor, E. (1988). Attention deficit and conduct disorder syndromes. In M. Rutter, A. Hussain Tuma, & I. S. Lann (Eds.), *Assessment and diagnosis in child psychopathology* (pp. 377-407). New York, NY: Guilford Press.
- Viesselman, J. O., Yaylayan, S., Weller, E. B., & Weller, R. A. (1993). Antidysthymic drugs (antidepressants and antimanic). In J. S. Werry & M. G. Aman (Eds.), *Practitioner's guide to psychoactive drugs for children and adolescents* (pp. 239-268). New York: Plenum Medical Book Company.
- Weiss, B., & Catron, T. (1994). Specificity of the comorbidity of aggression and depression in children. *Journal of Abnormal Child Psychology*, *22*, 389-401.