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ABSTRACT

The study examined issues surrounding the conjoint diagnosis of learning disability (LD) and emotional disorder (ED) using a sample of 30 children (ages 6-12) drawn from referrals to a hospital-based outpatient treatment center. The sample was evaluated for LD using selected learning-based measures. Two separate scales were used to classify emotional disorder. Classification of LD according to perceptual, visual-motor, achievement, and intelligence discrepancies (irrespective of emotional disorder) discriminated among three groups of children: those with no learning difficulties, those with learning problems, and those with learning disabilities. Emotional variables were unable to distinguish the LD groups, and learning variables were unable to distinguish the groups according to level of emotional disturbance. Among conclusions reached were the following: (1) There is little support for a strong linear relationship between LD and ED; (2) The notion that LD children will have a greater degree of emotional difficulties than their non-LD counterparts is not supported by the data; (3) The notion that learning problems (as distinct from learning disabilities) occur in higher numbers among ED children is not disputed. Independent diagnosis and multiple intervention strategies are recommended. The continuing use of exclusionary and hierarchical classifications with reference to emotional disorder in the diagnosis of learning disability appears to be unwarranted. (JW)

Independent Diagnosis of Learning Disability and Emotional Disorder: Rationale, Method, and Results

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Running Head: Independent Diagnosis of Learning Disability

Abstract

Identification of conjoint learning disability (LD) and emotional disorder (ED) in children has both theoretical and practical implications. The present study, utilizing independent diagnosis of LD and ED examined the relationship between LD and ED in a clinical sample of 30 latency-aged children seen at a multidisciplinary clinic. Data analysis offered little evidence for a strong linear relationship between LD and ED. The implications for both method and results support an approaching utilizing conjoint independent diagnosis of the two disorders.

Independent Diagnosis of Learning Disability and Emotional Disorder: Rationale, Method, and Results

Children who display a mixture of learning and emotional problems present a diagnostic challenge to psychologists and other professionals. Although in such children multiple disorder may be identified, in practice the conjoint diagnosis is given sparingly. Reasons for this are varied and include the general reluctance to label emotional problems in children (2); the historical evolution of the learning disability diagnosis as one disassociated from the stigmatizing connotations of mental retardation and emotional disturbance (10); the lack of agreed upon operational definitions of what constitutes either learning disability or emotional disorder (2,6); and the varying perspectives of psychologists and other professionals as a function of their training, work setting, familiarity with the disorders, etc. (11).

Interest in the prevalence of conjoint learning and emotional disorder extends beyond the diagnostic process. The intervention programs designed and prescribed for children are directly related to the type of problems identified by clinical personnel (4). Whether one perceives a learning disability, an emotional disorder, or a learning disability and emotional disorder is an integral part of the process of remediation planning. An intervention program that is sufficiently comprehensive to meet the child's needs can be developed within a framework that considers these possibilities. The extent to which the disorders overlap is related to

issues of etiology, reciprocal influence and the mechanisms by which learning and emotional disorders evolve (21).

The imprecision of the learning disability and emotional disorder rubrics present formidable obstacles to the examination of the between these disorders. Moreover, the diagnosis of learning disability introduces an additional set of complicating factors. Currently, the accepted diagnosis of learning disability specifies that learning disability not be "primarily" the result of emotional disturbance (8). When symptoms of learning and emotional disorder occur together, a frequent occurrence, a decision about the presence and significance of emotional disturbance must enter into the learning evaluation at a very early stage.

Denckla (7) has emphasized the exclusionary feature of the learning diagnosis, noting that in learning disability, the presence of significant emotional disturbance must be excluded. Rudel (18) has called the discrepancy criterion, the gap between a child's expected and actual achievement a critical aspect of the labelled learning disorder. In practice, the approach is taken that to be diagnosed as a learning disabled, a child may not have identifiable emotional problems apart from those than can be subsumed as secondary reactions to the learning disability.

The separation of learning disability from accompanying emotional disturbance, however, has been contested by a number of authors (10,14). The latest codification of psychiatric diagnosis, the DSM III (2), has adopted the conjoint diagnostic approach allowing for the diagnosis of concurrent learning and emotional disorder. In contrast to the exclusion

approach (including the primary-secondary disorder classification), the conjoint disorder model does not confuse concurrent disability with either dependence or hierarchical significance. Utilizing independent criteria, conjoint diagnosis preserves data regarding presence and type of disorder that tends to be overlooked with the exclusion and primary-secondary disorder approach.

The present study was designed to examine these premises in a clinical setting. A standardized approach, assessing learning and emotional factors independently, was used in order to achieve an objective evaluation of these constrasting approaches. In the present study, the operational diagnosis of learning disability was based solely on discrepancy criteri: discrepancies between and within -- expectation and achievement, potential and achievement, perceptual skills, achievement levels and age expectancies. Emotional disorder for this study was defined on the basis of degree of behavioral dysfunction and diagnosed emotional disorder. The relative contribution of emotional factors to a learning problem was dropped as a criterion; but the additional exclusionary criteria of no "primary" sensory, motor, or mental retardation disturbances were retained. Abandoning the exclusion criteria with regard to emotional disorder, made the diagnosis of learning disability one of consistent and functional learning problems. This was identified by a pattern of discrepancies differentiating it from the more amorphous group of learning problems.

The operational definitions of learning disability and emotional disorder are explained in the following sections. Application of these

concepts to the diagnosis of children referred for evaluation because of academic and/or behavioral complaints is described.

Method

Sample

Thirty children, ranging from 6 to 12 years of age, constituted the sample. These children were referred to a multi-disciplinary hospital based outpatient evaluation and treatment center specializing in academic, emotional, and language problems. Criteria for inclusion in the study were: ages 6-12; psychological and learning evaluation conducted; I.Q. of 85 or better on verbal or performance scales of the WISC-R; no sensory or motor handicap; and intact file. The extensive diagnostic records of a sample of the latency aged children seen for evaluation between the years 1978 and 1980 were randomly selected. All files contained the reports of standard neurological, learning, and psychological evaluations. In addition, data from school and parental reports, social history interviews, and supplemental evaluations (e.g. speech and language) were generally available as well. Children seen at the center were typical of those seen at outpatient mental health clinics. Descriptive data for the sample is contained in Table 1.

Insert Table 1 about here

Measures

Learning based measures. Five tests were chosen from those in standard use at the center on the basis of their utility in providing information. Taken together, they made up the learning profile and contributed to the determination regarding presence or absence of learning disability.

1. VMI - Developmental Test of Visual Motor Integration. This test assesses design copying as the child reproduces a graded series of geometric forms (5).
2. Wepman Perceptual Test Battery. This test assesses auditory and visual processing abilities via a series of 6 tasks. Auditory discrimination, auditory memory, auditory sequential memory, visual discrimination, visual memory, and spatial orientation memory are separately measured (22-27)
3. WRAT - Wide Range Achievement Test, Level I, for assessing achievement in reading (R), spelling (S), and arithmetic (A) achievement (12).
4. Bender Gestalt Test scored according to Koppitz norms, (13) assessing visual-motor development. (This test was administered to only half the sample as it and the VMI overlap is significant ways).
5. WISC-R - Wechsler Intelligence Scale for Children - Revised (20), assessing verbal intelligence (VIQ), performance intelligence (PIQ),

and full scale intellectual functioning (FSIQ). The test yields information regarding both achievement and potential for performance.

Insert Figure 1 about here

Figure 1 presents the test by test classification used to assess each child's performance. The assessment profile was arrived at following clinical discussion and pilot testing. A scattergram profile of performance across tasks was examined for each child prior to the determination of learning disability. A clinical diagnosis based on the profile was required in order to determine learning disability. A 4 point scale was devised:

0 - Absent (no learning problem present)

1 - Mild learning problem or equivocal learning disability

Tutoring or minimal intervention may be indicated.

2 - Learning disability of moderate proportion. A definite need for specialized

intervention in the form of individualized program and/or special class placement is present.

3 - A learning disability of severe proportion. Individualized program and special class placement required.

For a child to be classified as learning disabled, a consistent pattern of discrepancies on the learning measures in the moderate range was

necessary. In the presence of both mild and more severe learning difficulties the WISC-R score was weighted most heavily.

Measures of Emotional and Behavioral Disorder.

Two separate scales were used to classify emotional disorder:

1) The Group for the Advancement of Psychiatry's diagnostic nomenclature (9) was used to assign a diagnosis to each child. The system was modified by the addition of a borderline category which was not present in the original classification (17). The accepted DSM III taxonomy was not in use when the data was collected.

2) The RGL Degree of Disturbance scale, was devised to assess the extent of behavioral dysfunction in latency aged children. This scale is a clinician rated set of 11 variables assessing degree of dysfunction(16). The total degree of dysfunction score is the sum of three general behavior scales (academic, social and familial disturbance) and 8 specific variables (ego, inappropriate affect, anxiety, attention, impulsivity and hyperactivity, withdrawal and constriction, motivation, and need for individual attention) Each variable was rated on a 4 point Likert scale ranging from absent to severe disturbance. The total scale provided a behaviorally based rating of each child's emotional difficulty independent of the specific diagnostic framework used.

Procedure

The case records of 30 children seen for evaluation at the Siegel Institute, Michael Reese Medical Center, were examined. Rater A reviewed the child's functioning on the learning measures, summarized the information, and arrived at a learning diagnosis. Rater B reviewed the child's record, arrived at and compared the emotional diagnosis with the diagnosis given in the file and completed the RGL Degree of Disturbance measure. Reliability was assessed by a third independent rater who achieved satisfactory interrater reliabilities on the Learning and Degree of Disturbance measures (Learning $r(8) = .88$; RGL Degree of Disturbance: General $r(9) = .60$; Specific $r(9) = .72$; Total $r(8) = .88$).

Results

Learning

As Table 2 indicates, 15 children were classified as having learning problems while an additional 10 received a diagnosis of learning disability. To assess the extent to which the classification of children was consistent, a discriminant function analysis utilizing Wilks Lambda was performed. The children classified as having no learning disability (absent or learning problems) were distinguishable from the learning disability group, X (5) = 26.16, $p \leq .001$. The data showed that discrepancy between verbal and performance I.Q. (WISC-R), performance IQ, achievement scores (WRAT), and visual perceptual problems (Wepman) contributed most to the discrimination.

Insert Tables 2 and 3 about here

Emotional Disturbance

The emotional diagnoses of the children are recorded in Table 2.

The RGL Degree of Disturbance scale was analyzed for differences between the neurotic and borderline categories because they represented 70% of the diagnoses (see Table 3). A "t" test analysis for general, specific and total scores showed differences in the latter two scales, $t(19) = -2.31$, $p = .016$; $t(18) = -2.1$, $p = .025$ respectively. With results in the expected direction, the Degree of of Disturbance scale was retained for the analysis of the relationship between learning and emotional behavioral disturbance. (A fuller analysis of the neurotic to borderline comparison on the RGL Degree of Disturbance scale was performed and will not be repeated here (17).

Learning and Emotional Disorder

The relationship between learning disability and emotional disturbance was assessed as follows:

1) Correlation - a modest but significant correlation was found between degree of learning problems and the degree of emotional-behavior disturbance $r(29) = .37$, $p = .05$.

2) Chi square - Degree of Disturbance scores were divided at the median and compared with the presence or absence of learning disability. The results were non-significant, X (1) = 2.51, according to Yates correction.

3) Discriminant function - To determine if emotional-behavioral variables could classify learning disability, the Degree of Disturbance variables alone were included in the discriminant analysis. The results were nonsignificant, $\underline{X}$ (1) = 1.31. A parallel analysis for the Degree of Disturbance high and low groups was run with the learning variables to determine if learning variables could classify emotional-behavioral disorder, and the results were again nonsignificant $\underline{X}$ (6) = 9.84. Thus, the emotional variables were unable to distinguish the learning disability groups, and the learning variables were unable to distinguish the groups according to levels of emotional disturbance.

Demographic Data

The demographic characteristics contained in Table 1 were examined for correlation with the learning and Degree of Disturbance groups. All Pearson correlations were nonsignificant with the exception of age and grade with learning disability, $\underline{r}(30) = .35$, $\underline{p} < .05$ and $\underline{r}(30) = .34$, $\underline{p} < .05$ respectively.

Discussion

Learning Disability

The classification of learning disability according to perceptual, visual- motor, achievement and intelligence discrepancies, irrespective of emotional disorder, discriminated among three groups of children: no learning difficulties, learning problems, and learning disabilities. In considering the specific learning measures employed and their interplay, several points deserve mention. The heavier weighting of the WISC-R verbal

performance discrepancy in our schema reflects a rationale regarding the higher order conceptual tasks tapped on the WISC-R. A child's ability to compensate for perceptual deficiencies on the verbal aspects of the WISC-R allows for a reasonable estimate of the extent to which he or she has managed to cope and effectively apply strategies to overcome weaknesses. In contrast, the difficulties present on more basic visual-motor and perceptual tasks convey the basic perceptual (neurological or maturational) deficits associated with the learning disabilities. The discrepancies in areas of academic achievement reflect the ultimate interference with achievement in the school situation that is characteristic of the learning disabilities. Consideration of the total pattern of a child's functioning within, between and across all of these measures provides the most effective means of evaluating for the presence of a significant and specific learning disability. The learning disability diagnosis was based on such discrepancies in this study.

The correlation of age and grade with learning disability suggested that increasing age was associated with diagnosed learning disability. In view of the fact that a learning disability increasingly hampers a child as he advances in age, these findings are expected. They reinforce the interference of the true learning disability with the realization of a child's potential achievement.

Emotional Dysfunction

A measure of behavioral dysfunction was adopted as the variable for assessment of emotional disturbance in response to several factors. The GAP diagnostic classification system is based on an internal psychological

structure whose relationship to behavioral pathology is variable. Where an entire group of children might receive GAP diagnoses, discrimination of emotional disorders among the learning groups would be limited to examination of the diagnoses given children in each emotional category. The behaviorally based measure made it possible to compare the child's learning disorder with a scale utilizing variables relevant to all children irrespective of GAP diagnosis.

The measure's effectiveness in distinguishing behavioral pathology in the expected direction (17) was supported by comparing the neurotic (less severe) and borderline (more severe) disorders on the Degree of Disturbance scale. The results enhanced the concurrent validity of the scale and the measure was retained for the analysis of the relationship of learning disability to emotional-behavioral disorder.

Learning Disability and Emotional Dysfunction

The relationship of learning disability to emotional disorder was assessed in several ways. The diagnostic systems used yielded independent diagnoses of both learning and emotional disorders on the basis of separate classes of measures. The first of the analyses considered the relationship of learning problems to the degree of emotional-behavioral disturbance via correlation. A strong correlation could be construed as evidence for a relationship that might support the diagnostic model of a primary and secondary disorder (learning and emotional) as advocated by the learning disability guidelines currently in use.

The very modest correlation found tended to limit the relevance of the variance common to both disorders. There may be a factor common to both disorders, and/or there may be a reciprocal interaction between learning and emotional-behavioral problems. Nevertheless, the extent to which these two categories or classes of disorder are linearly independent does not justify a diagnostic model that would rank one as primary and another secondary.

The second analysis via Chi square supported the same conclusion. When learning disability was separated from non-learning disability and compared with emotional-behavioral dysfunction, the lack of significance indicated that the basic independence of the two disorders was not challenged.

The third analysis reaffirmed the lack of dependence from a different vantage. If emotional-behavioral variables could predict learning disability, then significant association should be present. Conversely, if learning variable could predict emotional dysfunction, the same should be true. The negative results point in the same direction as the previous analysis - namely, that there is a significant degree of independence of the two disorders.

Conclusions

The results of our sample of children who presented a high level of academic and emotional-behavioral difficulties converge as follows. There is little support for a strong linear relationship between learning disability and emotional difficulties. By extension, there is minimal

support for the rationale of an exclusionary diagnostic approach that would make judgments about learning disability on the basis of emotional disturbance. The type and degree of emotional-behavioral disorder need not substitute for learning variables in the determination of learning disability. Importantly, we found no support for emotional-behavioral difficulty directly linked to learning disability. The intuitively attractive model that children with learning disabilities will have a greater degree of emotional difficulties than their non-learning disabled counterparts, was not supported by our data. We stress that these results are specific to a comparison of learning disabled and learning problem children in the lower grades. Those learning problems not consistent enough or significant enough to be classed as learning disability were seen as less disabling than the learning disabilities. The notion that learning problems occur in higher numbers among children with emotional disturbance was not disputed.

These trends hold for learning disability defined as a consistent and strong discrepancy across a child's functioning. Children with learning disability were not more prone to severe emotional/behavioral difficulties than their counterparts who did not manifest the specific disorder.

The approach we adopted was of necessity a general one. We did not set out to examine the relationship of type of learning disorder to type of emotional problem, although this is warranted in further research. Identification of those learning disabilities that may covary with specific emotional and behavioral disorders will probably define those specific

disorders that share greater common variance than the general class considered here.

The present study's implications remain in the areas of diagnosis and remediation. The continuing use of exclusionary and hierarchical classification vis a vis emotional disorder in the diagnosis of learning disability appears to be unwarranted (15, 18, 19). When criteria are clear enough, learning disability can be diagnosed reliably irrespective of emotional criteria. Intervention solely related to learning disability where sympomotology is mixed may neglect aspects of emotional difficulties in need of attention. The reverse is equally true. Emotional intervention alone in the face of mixed difficulties risks neglecting a child's current and compounding difficulties in the academic area - with potential risk to academic and emotional wellbeing.

While nonspecific benefits of either learning or emotional intervention may effect positive changes in the alternate sphere, the degree of independence suggested by our study reaffirms the appropriateness of independent diagnosis and multiple intervention strategies.

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Footnotes

An earlier version of this paper was presented at the 90th annual Convention of the American Psychological Association, Washington, D.C., 1982. Correspondence should be sent to Simon Shimshon Rubin, Department of Psychology, University of Haifa, Mt. Carmel, Haifa, Israel 31999.

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Table 1

Demographic Characteristics of Sample (n = 30)

Age:	6 to 12 years ($\bar{X}$ = 9, SD = 1.8)	
Grade:	1st to 6th grade ($\bar{X}$ = 3, SD = 1.8)	
Sex:	Male	83.3%
	Female	16.7%
Race:	Black	70%
	White	30%
Family intact:	45%	
Payment (SAS):	Private	43.3%
	Public Aid	43.3%
	Other	13.3%
School system:	Public	76.7%
	Parochial	23.3%
Presenting complaints(a):		
	Academic	90%
	School Behavior	46.6%
	General (non school) Behavior	33.3%
	Neurological	10%

(a) Multiple complaints yield sum greater than 100%.

Table 2

Learning and Emotional Diagnoses

	N
Learning(a)	
No difficulty	5
Learning Problem	15
Learning disability	10
Emotional (Group for the Advancement of Psychiatry, 1966-expanded)	
Reactive disorder	2
Neurotic disorder	11
Borderline disorder	10
Personality disorder	7

(a) classification according to 4-point Likert Scale assessing learning disability.

Table 3

RGL Degree of Disturbance Scores for Neurotic and Borderline Groups

		N	Mean	SD	t
General(a)	Neurotic	10	4.2	1.03	
	Borderline	10	4.6	1.08	-.85
Specific(b)	Neurotic	11	7.73	1.79	
	Borderline	10	10.2	3.01	-2.31
Total	Neurotic	10	11.8	2.44	
	Borderline	10	14.8	3.8	-2.1*

(a) Academic, Social and Familial Dysfunction

(b) Ego, Affect, Anxiety, Attention, Impulsivity and Hyperactivity, Withdrawal and constriction, Motivation, and Need for individual attention disturbances.

* $p < .05$, one tail test.

Figure Caption

Figure 1. Learning Problem Scoring Matrix

Measure / Level of Functioning	VMI[a]	Wepman[b]		Wepman Discrepancy Auditory Visual[c]	WRAT			WRAT Discrepancy[c]	Bender Gestalt[a]	Independent Diagnosis WISC - R			Independent Diagnosis WISC - R V - P Discrepancy[c]
		Auditory	Visual		R	S	A			VIQ	PIQ	FSIQ	
Well above Average	> 1.5 years above	Total Score ≥ 4		N/A	> 1.5 SD above			N/A	> 1.5 years above	> 1.5 SD above			N/A
Above Average	≥+1 year ≤+1.5 years	Total Score +3 +2		N/A	≥ +1 SD ≤ +1.5 SD			N/A	≥+1 year ≤ 1.5 years	≥ + 1 SD ≤ + 1.5 SD			N/A
Average	< + 1 year < - 1 year	Total Score +1 0		0	<+1SD <-1 SD			0	< +1 year < -1 year	< + 1 SD < - 1 SD			< + 1 SD < - 1 SD
Learning Problem Equivocal/ Mild	≥- 1 year ≤- 1.5 years	a) Total Score -2 -3 b) Number of (-2)=0		1 unit	≥ -1 SD ≤- 1.5 SD			1 unit	≥-1 year ≤-1.5 years	≥ - 1 SD ≤ - 1.5 SD			≥ -1 SD ≤ -1.5 SD
Learning Disability Unequivocal/ Moderate	≥-1.5 years ≤-2.5 years	a) Total Score -4 -5 b) Number of (-2)=1		2 units	≥-1.5 SD ≤-2 SD			2 units	≥-1.5 years ≤-2.5 years	≥ -1.5 SD ≤ - 2 SD			≥-1.5 SD ≤-2 SD
Learning Disability - Severe	≥-2.5 years below	a) Total score -6 b) Number of (-2)= 2		3 units or more	≥-2 SD below			3 units	≥ -2.5 years below	≥ - 2 SD below			≥-2 SD below

[a] age scores